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# ZIMBABWE AGRICULTURAL INCOME AND EMPLOYMENT DEVELOPMENT (Zim-AIED)

## FINAL REPORT: SEPTEMBER 2015

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*All photos by Fintrac Inc.*

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# ACRONYMS

| | |
|---|---|
| AI | Artificial Insemination |
| BA | Better Agriculture |
| BDS | Business Development Services |
| CABS | Central African Building Society |
| CESVI | Cooperazione e Sviluppo (Cooperation and Development, an Italian NGO) |
| CLUSA | Cooperative League of the United States of America |
| COSV | Coordination Committee for Voluntary Service |
| CSV | Creating Shared Value |
| EMMP | Environmental Mitigation and Monitoring Plan |
| EU | European Union |
| FTE | Full-Time Equivalent |
| FTF | Feed the Future |
| GM | Gross Margin |
| GAPs | Good Agricultural Practices |
| IMC | Irrigation Management Committee |
| IPM | Integrated Pest Management |
| IRD | International Relief and Development |
| MAMID | Ministry of Agriculture, Mechanization and Irrigation Development |
| MCC | Milk Collection Center |
| MFIs | Microfinance Institutions |
| MPA | Milk Producers Association |
| MSME | Micro, Small, and Medium Enterprise |
| PERSUAP | Pesticide Evaluation Report and Safe Use Action Plan |
| PFA | Partner Fund Agreement |
| PMP | Performance Management Plan |
| PAR | Portfolio At Risk |
| PRIZE | Promoting Recovery In Zimbabwe Project |
| RBZ | Reserve Bank of Zimbabwe |
| SAT | Sustainable Agriculture Technology |
| SAZ | Standards Association of Zimbabwe |
| TC | Tissue Cultured |
| ZESA | Zimbabwe Electricity Supply Authority |
| Zim-AIED | Zimbabwe Agricultural Income and Employment Development |
| ZINWA | Zimbabwe National Water Authority |

# ACKNOWLEDGEMENTS

The USAID Zimbabwe Agricultural Income and Employment Development (Zim-AIED) achieved significant results in its five years of implementation. Zim-AIED contributed to increased incomes and food security for more than 140,000 rural households by linking smallholder farmers to markets; expanding access to credit; and improving livestock, staple, and high-value crop productivity through the transfer of good agricultural and business practices.

Fintrac Inc. was the agribusiness consulting firm tasked with primary implementation, in conjunction with four subcontractors: CARE; the Cooperative League of the USA (CLUSA); International Relief and Development (IRD); and Sustainable Agricultural Technology (SAT).

The sustainable impact that this consortium was able to facilitate however would not have been possible without the vision and guidance of the USAID Mission; the cooperation and hard work of provincial and technical experts from the Ministry of Agriculture, Mechanization and Irrigation Development; and the investment of other partners that included financial institutions, input suppliers, and commercial buyers (as detailed throughout this final report).

The primarily Zimbabwean project staff also deserve accolades for an outstanding and tireless collective performance – it was always results-driven and of highest quality.

And then of course there are the smallholder clients and beneficiaries themselves, whose unwavering commitment to their families and communities, and to the overall agricultural sector, is nothing short of inspirational.

It has been our pleasure to support them, and to work alongside so many great colleagues.

Sincerely,

Claire Starkey

Fintrac President

*Members of the Zim-AIED team at the closeout ceremony, May 2015.*

# 1. EXECUTIVE SUMMARY

Over the course of five years, Zim-AIED increased the production, productivity, incomes, and food security of more than 170,000 farmers across the country through trainings, technical assistance, and linkages to inputs, product markets, and credit (via financial institutions).

Smallholder farming drives Zimbabwe's agricultural economy with more than half of the population dependent on some form of farming activity for their livelihood. Between 1990 and 2000, the horticulture sector in Zimbabwe was the second largest agricultural foreign exchange earner after tobacco, but after a decade of downward trends, many small-scale farmers were barely eking out a living. A key component of Zim-AIED was increasing incomes and food security for rural families through a market-led approach.

Notable life-of-project achievements include but are not limited to:

- **Trainings and technical assistance.** To equip smallholder farmers with the requisite skills to commercialize farming activities, Zim-AIED provided trainings and technical assistance in agronomy, livestock husbandry, business skills, irrigation management, postharvest handling, processing, gender integration, environment, and natural resources management (NRM) to more than 140,000 farmers.
- **Commercial linkages.** A total of 9,525 farmers on 6,268 hectares in 42 irrigation schemes strengthened their ability to function as commercial agribusiness hubs thanks to Zim-AIED facilitated linkages with input suppliers, marketing organizations, and microfinance institutions (MFI).
- **High levels of technology adoption.** A total of 106,472 farmers and others adopted good agricultural and business practices on 110,945 hectares.
- **Loans disbursed.** AgriTrade partner banks disbursed 1,746 loans valued at $15.33 million to farmers, agrodealers, processors, and farmers. Separately, as facilitated by the program, non USAID-funded financial partners disbursed 1,892 loans worth $500,934 to smallholder farmers through direct lending.

- **Increase in agricultural productivity.** Across all value chains, program intervention boosted agricultural productivity. For example, bananas, paprika, and maize yields increased from baseline by 1,563 percent, 123 percent, and 25 percent, respectively.
- **Jobs increased in line with production.** Farmers and companies created 1,609 full-time equivalent jobs in the agriculture sector.
- **Total sales for all supported commodities across the life of the program were $318.39 million**. The program was successful in linking smallholder farmers to input and output markets, resulting in these record sales to commercial buyers.
- **Growth in overall gross margins.** Across all value chains, overall gross margins increased 1,634 percent (from baseline), which maximized food security for smallholder farmers. The average return on investment per invested dollar or GM/TVC index achieved was $4.08, which means that for every dollar invested by smallholder farmers they realized a return of $4.08.
- **Improvement in net income.** The average net income from production of agricultural products by program beneficiaries increased by 141 percent from $483 (baseline) to $1,162 per household in Fiscal Year (FY) 2015. The highest net income per household was $1,725 in FY2014. Maize, livestock, and horticultural crops, including bananas contributed the most to improved household net income.
- **Implementation of gender mainstreaming policy.** Men, boys, women, and girls groups were specifically considered when planning all program interventions. As a result, 50 percent of farmers who benefited from the program were females.

**Figure 1: Zim-AIED Geographic Coverage**

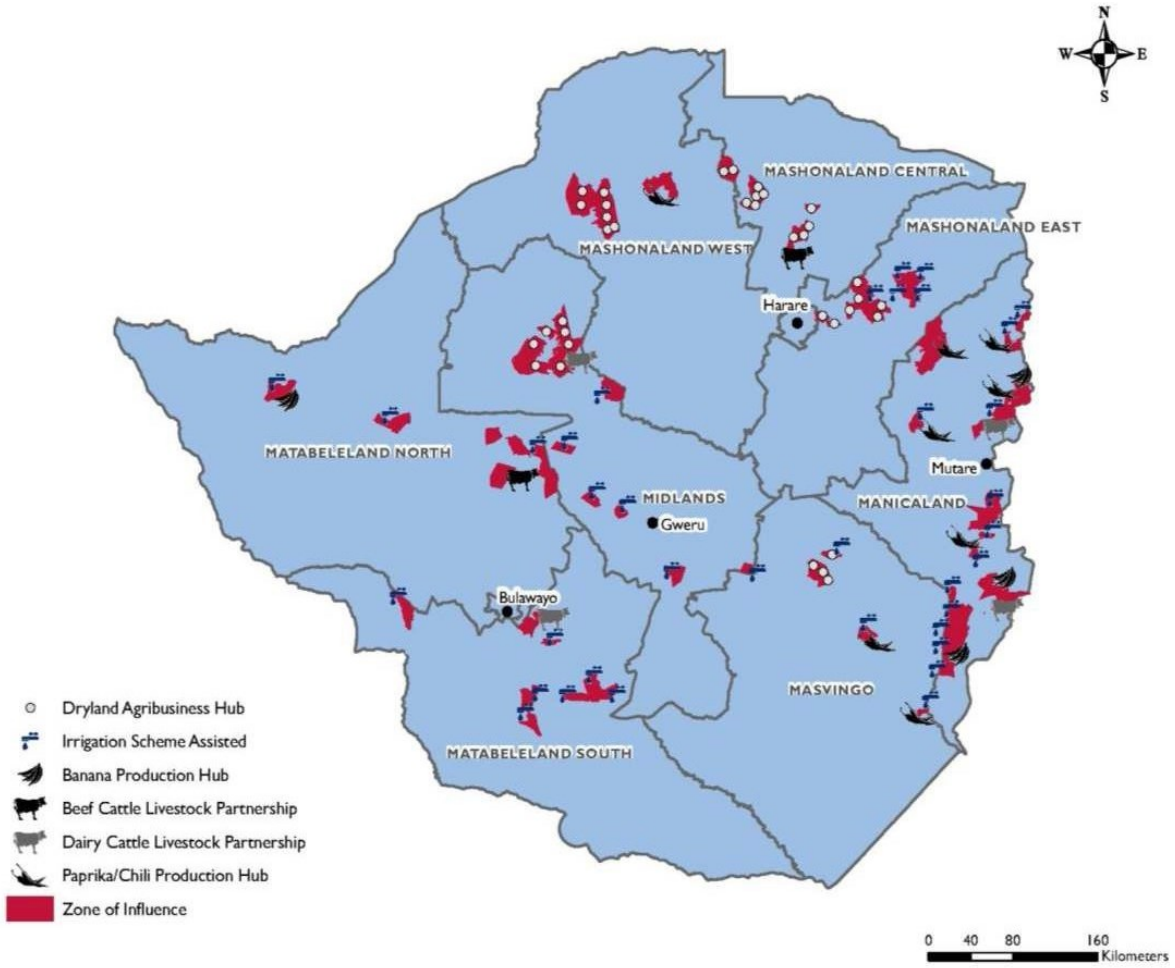
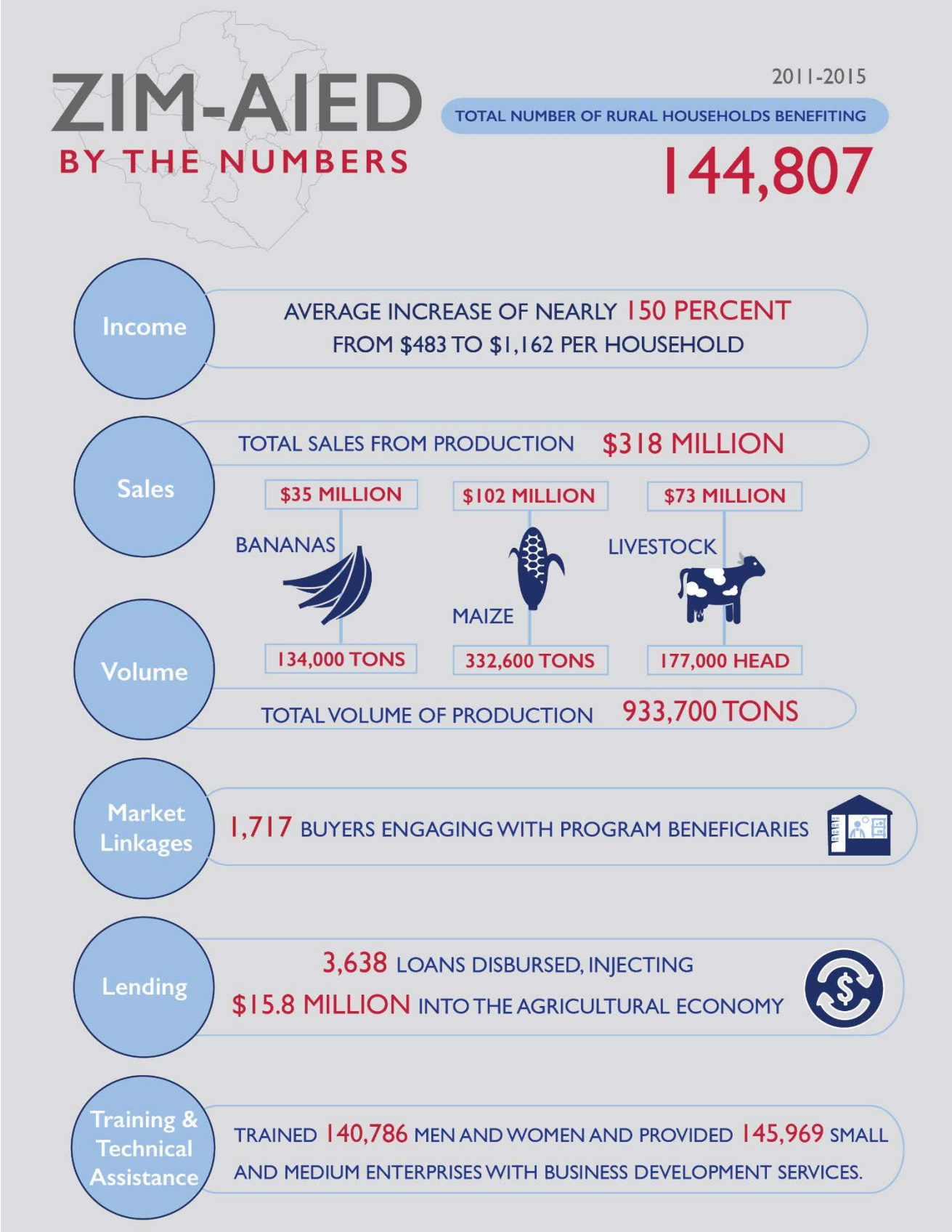


**Figure 2: Zim-AIED by the Numbers**



# 2. PROGRAM OBJECTIVES

To improve the food security of more than 140,000 low-income rural households, Zim-AIED focused on increasing incomes from livestock, staple food, and high-value crop production, while simultaneously generating new sales, incomes, and jobs. Interventions aimed to improve the livelihoods of vulnerable-but-viable farmers through sustainable commercial initiatives.

The program developed commercial partnerships to create a national network of agribusinesses that strengthen access to markets at fair prices; provide working capital and finance at realistic rates; supply inputs efficiently; and provide extension and training to growers as an embedded cost. Main interventions centered on the following activities:

- **Market linkages** – increasing the number of buyers purchasing products from smallholder farmers through formal and informal arrangements.
- **Finance and credit to traders** – increasing the availability and disbursement of working capital to rural-based agribusiness investors and to agritraders buying products from and supplying inputs to smallholders at the village level.
- **Increasing direct credit to farmers** – through commercial loan advances from buyers and recoverable grants.
- **Staple food crops** – increasing local and national production of maize, beans, groundnuts, and root crops at competitive prices.
- **High-value crops** – raising smallholder earnings through surplus production of staple food crops and commercial production of high-value crops, particularly banana, vegetables, and paprika.
- **Rural entrepreneurs** – actively supporting a new generation of small- and medium-sized agribusinesses that will invest in rural areas across Zimbabwe.
- **Commercializing targeted irrigation schemes** – through rehabilitation, crop selection, and scheduling (calendarization) for higher returns and year round production, increased access to credit, business planning, and introduction of new buyers.

# 3. ACTIVITIES

Program activities included credit for crop and livestock farmers and traders; and training and technical assistance on productivity and marketing assistance. The sections below describe Zim-AIED activities in six categories of results measured against 14 Feed the Future, 10 custom, and five gender specific indicators.

- **Beneficiaries**: number, gender balance, geographical spread, and types of support received.
- **Sales**: additional income for Zim-AIED beneficiaries, measured by sales of all agricultural products.
- **Gross margin and net income**: profitability and net earnings from agricultural activities.
- **Finance and credit**: AgriTrade revolving fund and micro-credit support for rural traders and farmers.
- **Business development**: recordkeeping, crop budgets, marketing, and contract production.
- **Productivity**: increased production and net returns from crop and livestock products.

## 3.1 BENEFICIARIES

*FTF 4.5.2-13 Number of rural households benefiting from US government (USG) assistance*

Over the life of the program, Zim-AIED benefited 144,807 unique rural households, or 173,768 individuals, of which 50 percent were women (Table 3.1.1). This number is an achievement of 19,807 households, or 16 percent above the LOP target of 125,000 households[1]; the bulk of beneficiaries (35.1 percent and 34.5 percent, respectively) were reached in Years 2 and 3. Delays in implementation caused by difficulties with the protocol processes of various central, provincial, and district-level government agencies accounts for the low proportion of rural household beneficiaries

[1] Reduced target from 150,000 to 125,000 based on reduced funding.

in Year 1 (15 percent). The intensification of program activities to existing beneficiaries, and some opportunistic new beneficiaries occurred primarily in FY2014 and FY2015.

Beneficiaries were spread across the country with the highest number of the households (22 percent) coming from Manicaland, where Zim-AIED was active in all districts of the province, promoting value chains such as livestock, staple crops, horticulture, and processed products. Matabeleland North and South in Natural Agro Ecological Regions IV and V had the lowest beneficiary coverage as program interventions were limited to irrigation schemes and livestock agribusiness hubs.

**Table 3.1.1: Zim-AIED Household Beneficiaries by Province**

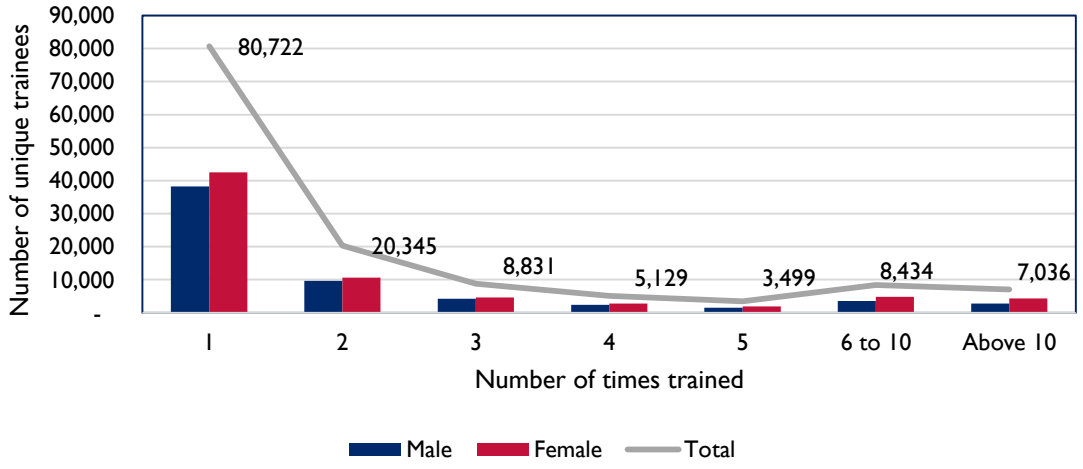
| Provinces | FY2011 to FY2015 | | | |
|---|---|---|---|---|
| | Male | Female | Total | % of Total |
| Manicaland | 15,480 | 16,093 | 31,573 | 22 |
| Mashonaland Central | 10,943 | 9,211 | 20,154 | 14 |
| Mashonaland East | 13,442 | 13,442 | 26,884 | 19 |
| Mashonaland West | 11,420 | 9,305 | 20,725 | 14 |
| Masvingo | 5,938 | 9,736 | 15,674 | 11 |
| Matabeleland* | 4,192 | 5,206 | 9,398 | 6 |
| Midlands | 11,121 | 9,278 | 20,399 | 14 |
| **Total** | **72,536** | **72,271** | **144,807** | **100** |

**Includes Matabeleland North and South Source: Zim-AIED*

Zim-AIED beneficiaries received support through trainings, technical assistance, and/or market linkages. Technical assistance and training promoted skills and knowledge critical to smallholder development, such as showcasing new and improved technologies in agronomy, NRM, irrigation management, livestock husbandry, and farm management. More than 130,000 farmers were trained in groups, with six to 30 farmers per group; around 17,500 farmers received individualized technical assistance and 30,935 rural households were linked to productive input and output markets.

During the life of the program, farmers' attendance of trainings and participation in local, regional, and international product markets were not uniform across households. Of the three types of assistance offered, one-time attendees were more prevalent than participants who attended multiple times. Figure 3.1.1 reflects a diverse range of trainees; those that attended training sessions once

**Figure 3.1.1. LOP unique trainees**

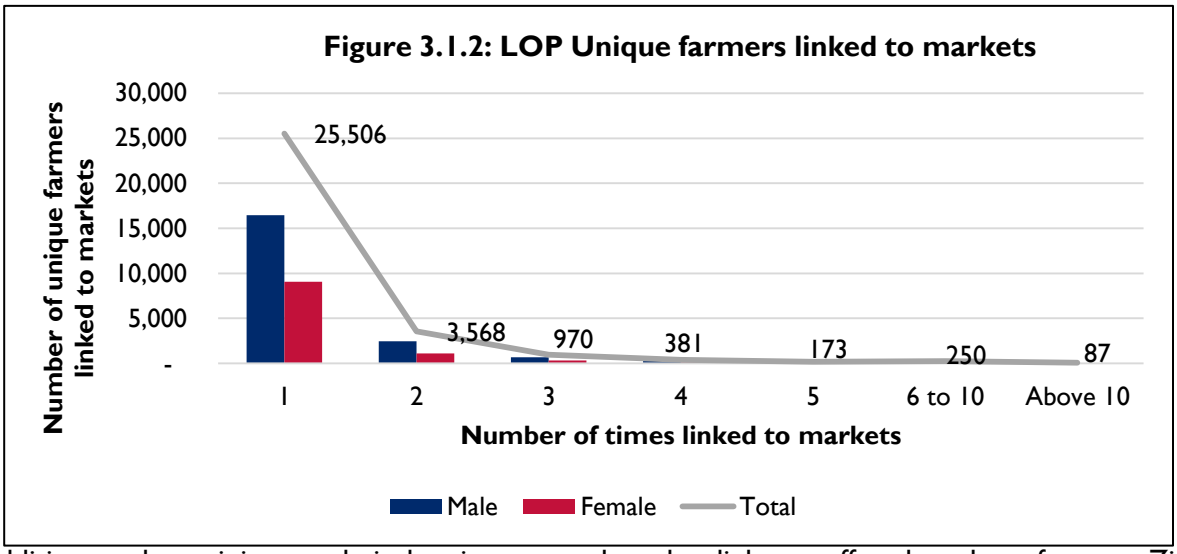


and never returned to those who were trained many times over multiple seasons.

Overall, a significant number of serious farmers keen to learn and adopt new agricultural and business practices; improve crop and livestock production and productivity; and raise gross margins and household net income from agriculture were trained more than twice. Women and men trainees were roughly equal, reflecting effective implementation of Zim-AIED's gender mainstreaming strategy. The majority of trainees participated in production training (93,926), with business skills (54,099) and postharvest (26,902) rounding out the top three training areas.

The Zim-AIED program strived to educate and reinforce farmers' knowledge in a diverse set of subjects. The mainstay of Zim-AIED's training program focused on enhancing production by covering topics such as land preparation, seedbeds and transplanting, fertilization, integrated pest management, harvesting, and postharvest handing. In total, 70 percent of all program trainees were trained in production-related subjects and 40 percent received business skills trainings to complement crop and livestock production trainings.

Figure 3.1.2 shows the number of unique farmers linked to productive markets over the life of the program and similar trends in participation and gender equality as previous figures. Since the chart reflects recorded market linkages, it likely accounts for less than a quarter of all actual market linkages.




In addition to the trainings, technical assistance, and market linkages offered to these farmers, Zim-AIED also expedited direct lending to farmers through banks and microfinance institutions (MFIs), and facilitated contract arrangements between farmers and various private companies.

**Table 3.1.2: Direct Lending to Farmers and Zim-AIED Facilitated Contract Arrangement**

| Activity | LOP Achievement | Percentage of Female Borrowers |
|---|---|---|
| Farmers receiving loans (AgriTrade) | 140 | 36 |
| Farmers receiving loans (other) | 1,650 | 50 |
| Farmers under contract arrangements | 21,870 | 45 |
| All farmers receiving credit via banks, MFIs, or agribusinesses | 24,860 | 43 |

*Source: Zim-AIED*

Although Zim-AIED's AgriTrade facility initially focused on lending primarily to agrodealers who participated in markets relevant to beneficiary farmers, by FY2013 the program expanded to promote lending to smallholder farmers as well. Consequently, 140 farmers received loans from

AgriTrade partner banks to support productive activities within various value chains. In addition, Zim-AIED engaged six financial institutions (Quest, Untu, Virl, CABS, Inclusive, and Agribank) to avail loans directly to beneficiary farmers. Under this arrangement, 2,502 smallholder farmers received loans, of which 50 percent were women. These farmers include the 441 banana farmers contracted to Matanuska who are now accessing capital investment and inputs finance loans from CABS. Zim-AIED assisted CABS to fully buy out farmers' debt with the program and transfer it to individual loan accounts with each farmer. The program also worked with private companies to extend inputs and guarantee product markets through contract arrangements with beneficiary farmers. As a result, 21,870 contracts were signed during the life of the program, of which 45 percent were with women.

## 3.2 INCREMENTAL SALES

*FTF 4.5.2-23 Value of incremental sales attributed to FTF implementation*

Beneficiary farmers recorded $105.92 million in sales during FY2015, which includes formal and informal marketing arrangements with commercial partners (Table 3.2.1). Cattle and maize sales were the largest contributors in FY2015 at $26.5 million and $32 million, respectively.

**Table 3.2.1: Value of Reported Sales by Zim-AIED Beneficiaries – FY2012-FY2015**

| Product | FY | Volume of Sales (tons/liters/heads) | Value of Sales ($) | Price ($/ton/liters/heads) |
|---|---|---|---|---|
| Maize | 2015 | 110,669 | 32,130,088 | 290 |
| | 2014 | 109,525 | 35,964,160 | 328 |
| | 2013 | 80,242 | 25,086,222 | 313 |
| | 2012 | 27,433 | 8,230,000 | 300 |
| | 2011 | 4,743 | 830,000 | 175 |
| Sugar Beans | 2015 | 13,357 | 15,358,393 | 1,150 |
| | 2014 | 10,243 | 11,301,578 | 1,103 |
| | 2013 | 2,425 | 2,934,162 | 1,210 |
| | 2012 | 2,557 | 2,940,000 | 1,150 |
| Bananas | 2015 | 50,304 | 12,180,120 | 242 |
| | 2014 | 47,979 | 13,072,020 | 272 |
| | 2013 | 19,742 | 5,526,757 | 280 |
| | 2012 | 15,895 | 3,815,000 | 240 |
| | 2011 | 5 | 500 | 100 |
| Paprika | 2015 | 1,091 | 1,918,743 | 1,756 |
| | 2014 | 970 | 1,812,085 | 1,868 |
| | 2013 | 737 | 910,855 | 1,236 |
| | 2012 | 3,482 | 4,488,000 | 1,289 |
| | 2011 | 1,580 | 1,580,000 | 1,000 |
| Butternuts | 2015 | 998 | 256,251 | 257 |
| | 2014 | 495 | 131,924 | 267 |
| | 2013 | 547 | 257,090 | 470 |
| Cabbages | 2015 | 633 | 211,246 | 333 |
| | 2014 | 454 | 156,529 | 345 |
| | 2013 | 1,786 | 339,057 | 190 |
| Fine Beans | 2015 | 31 | 13,869 | 446 |
| | 2014 | 49 | 30,733 | 627 |
| | 2013 | 10 | 5,415 | 542 |

**Table 3.2.1: Value of Reported Sales by Zim-AIED Beneficiaries – FY2012-FY2015**

| Product | FY | Volume of Sales (tons/liters/heads) | Value of Sales ($) | Price ($/ton/liters/heads) |
|---|---|---|---|---|
| Peppers | 2015 | - | - | 0 |
| | 2014 | 30 | 11,520 | 384 |
| | 2013 | 34 | 17,000 | 500 |
| Tomatoes | 2015 | 14,649 | 6,869,540 | 469 |
| | 2014 | 3,573 | 1,636,627 | 458 |
| | 2013 | 4,729 | 2,670,153 | 565 |
| Beef Cattle | 2015 | 69,681 | 26,497,574 | 380 |
| | 2014 | 37,539 | 16,631,193 | 443 |
| | 2013 | 26,083 | 10,433,264 | 400 |
| Sweet Potatoes | 2015 | 8,504 | 2,828,557 | 333 |
| | 2014 | 18,509 | 6,046,646 | 327 |
| | 2013 | 3,040 | 1,029,013 | 338 |
| | 2012 | 4,511 | 2,120,000 | 470 |
| Soy Beans | 2015 | 2,599 | 1,449,126 | 557 |
| | 2014 | 3,521 | 1,637,306 | 465 |
| | 2013 | 132 | 65,364 | 495 |
| Cow Peas | 2015 | 82 | 42,718 | 517 |
| | 2014 | 499 | 249,259 | 500 |
| | 2013 | 194 | 93,516 | 482 |
| ABE Chilies | 2015 | 368 | 273,344 | 742 |
| | 2014 | 363 | 252,570 | 696 |
| | 2013 | 72 | 59,930 | 832 |
| Potatoes | 2015 | 249 | 164,277 | 660 |
| | 2014 | 48 | 36,882 | 768 |
| | 2013 | 900 | 603,000 | 670 |
| Groundnuts | 2015 | 5,327 | 5,019,845 | 940 |
| | 2014 | 3,490 | 2,398,976 | 687 |
| | 2013 | 2,061 | 1,013,842 | 492 |
| | 2012 | 3,149 | 1,480,000 | 470 |
| Tabasco Chilies | 2015 | 1,325 | 708,641 | 535 |
| | 2014 | 647 | 335,954 | 519 |
| | 2013 | 257 | 151,630 | 590 |
| Other crops | 2012 | - | 44,077,000 | - |
| **TOTAL** | | | **318,408,918** | |

Increase in sales value is a function of the increase in the number of growers, productivity, quality of products, prices, and buyers as a result of program intervention. Table 3.2.2 shows price movements per value chain for FY2013-FY2015. Moving from FY2013-FY2014, positive price movements were recorded for maize, paprika, cabbages, fine beans, cowpeas, potatoes, and groundnuts; cabbages and paprika recorded the highest movement because of a 248 percent fall in

production for cabbages and an influx of buyers for paprika due to the industry-wide approach adopted by Zim-AIED in FY2014, which resulted in seven commercial buyers competing for produce versus only one buyer in FY2013. From FY2014-FY2015, positive price movements were also recorded for sugar beans, tomatoes, sweet potatoes, soy beans, cowpeas, African Bird's Eye (ABE) chilies, groundnuts, and Tabasco chilies. The soy beans price increase was triggered by a 35 percent fall in production, while that of groundnuts was a result of the majority of groundnuts being sold fresh rather than dried, thus attracting higher prices. On average, paprika, cabbage, soy beans, cow peas, groundnuts, and potatoes had positive price movements.

Zim-AIED began to track milk sales in FY2015, as this activity started late in the program's life cycle. The volume and value of milk sales for Zim-AIED's dairy farmers in FY2015 was 77,548 liters and $391,945, respectively. The average gross margin per dairy animal was $321.

**Table 3.2.2: Farm-Gate Price Movements**

| | FY2013-FY2014 | | FY2014-FY2015 | | Average Price Movement | |
|---|---|---|---|---|---|---|
| Commodity | US$/ton change | % Change | US$/ton change | % Change | US$/Ton | % |
| Maize | 15 | 5 | -38 | -12 | 310 | -3 |
| Paprika | 632 | 51 | -112 | -6 | 1,620 | 23 |
| Banana | -8 | -3 | -30 | -11 | 265 | -7 |
| Sugar beans | -107 | -9 | 47 | 4 | 1,154 | -2 |
| Butternuts | -203 | -43 | -10 | -4 | 331 | -23 |
| Cabbages | 155 | 82 | -12 | -3 | 289 | 39 |
| Fine beans | 85 | 16 | -181 | -29 | 538 | -7 |
| Tomatoes | -107 | -19 | 11 | 2 | 497 | -8 |
| Sweet potatoes | -11 | -3 | 6 | 2 | 333 | -1 |
| Soy beans | -30 | -6 | 92 | 20 | 506 | 7 |
| Cowpeas | 18 | 4 | 17 | 3 | 500 | 4 |
| ABE chilies | -136 | -16 | 46 | 7 | 757 | -5 |
| Potatoes | 98 | 15 | -108 | -14 | 699 | 0 |
| Groundnuts | 195 | 40 | 253 | 37 | 706 | 38 |
| Tabasco chilies | -71 | -12 | 16 | 3 | 548 | -4 |

*Source: Zim-AIED*

## 3.3 GROSS MARGIN AND NET INCOME

*FTF 4.5-16 Gross margin in dollars per hectare for three selected products*

The calculation for gross margin considers the volume of production, area under production, volume of sales, value of sales, and cost of production. Gross margin per hectare is therefore calculated as:

= *(value of production less cost of production) / area under production*

Sales data is analyzed to derive the average seasonal price, which is used to value the total volume of production, including household consumption. Actual gross margins at the farm level can vary widely depending on a range of factors, such as rainfall distribution; access to irrigation; correct and timely application of inputs; adoption of good agricultural practices (GAPs); and access to input and product markets. Table 3.3.1 indicates the LOP gross margins from a random sample of maize, paprika, and banana growers who received technical assistance from Zim-AIED and its partners.[2]

[2] Sample B data were used for reporting. These are farmers drawn each year from Zim-AIED's beneficiary population using a stratified random sampling technique, with strata being value chain and geographic location. Data from Sample A (farmers enrolled during program inception and tracked during LOP) and Sample C (lead farmers tracked in Year 3&4) were used for other purposes.

**Table 3.3.1 : Trends in Gross Margins per Hectare for Proxy Crops: Maize, Paprika, and Banana**

| | Maize | | | | | Paprika | | | | | Banana | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Baseline | 2012 | 2013 | 2014 | 2015 | Baseline | 2012 | 2013 | 2014 | 2015 | Baseline | 2012 | 2013 | 2014 | 2015 |
| Yield (tons/ha) | 1.35 | 1.47 | 1.62 | 2.28 | 1.69 | 0.72 | 1.41 | 1.07 | 1.66 | 1.60 | 1.74 | 6.11 | 10.55 | 27.48 | 28.94 |
| Price ($/ton) | 180 | 300 | 313 | 328 | 290 | 1,111 | 1,290 | 1,236 | 1,869 | 1,760 | 230 | 240 | 280 | 272 | 240 |
| Cost ($/ha) | 206 | 216 | 294 | 315 | 223 | 384 | 584 | 556 | 718 | 644 | 180 | 991 | 1,120 | 1,417 | 1,066 |
| GM ($/ha) | 37 | 225 | 213 | 433 | 267 | 416 | 1,235 | 767 | 2,385 | 2,172 | 220 | 475 | 1,834 | 6,058 | 5,880 |

*Source: Zim-AIED*

The sample data collected demonstrates a general increase in the gross margins achieved for the three proxy crops across the years of program implementation. Increased yields and strong prices were the primary drivers, as farmers applied the agricultural and business practices learned while buyers drove completion for better quality products. Farmers in the last year of the program, however, achieved lower yields, product quality, and gross margins because of intermittent dry spells throughout the country and in the Southern Africa Development Community region, in general.

According to the Ministry of Agriculture, total national production of maize has fallen from 1,456,153 tons to 742,226 tons, while productivity dropped from 0.85 tons to 0.48 tons per hectare since the 2013-14 season. While these figures correspond to a 49 percent reduction in production and a 43 percent decrease in average yield, Zim-AIED maize farmers fared much better with yields 3.5 times higher than the national average. Although the gross margins of maize, paprika, and bananas were slightly lower in FY2015 compared to the previous year, they are 622 percent, 422 percent, and 2,654 percent higher than the baseline, respectively (See Annex 1 for Sample A results).

FY2014 saw the highest gross margins per hectare at $433, $2,385, and $6,058 for maize, paprika, and banana, respectively largely because of the even rainfall distribution that year, complemented by farmers' strong adoption of good agricultural and business practices. Specifically:

**Maize**. Overachieved by 73 percent against a target of $250. The government's new pricing policy (Statutory Instrument 122) in 2014 pegged the buying price of maize to $390 per ton (up from the last season's price of $250 per ton) resulting in an average real market price of $328 per ton. In addition, intensive training programs at agribusiness hubs led to high adoption of GAPs. Farmers also had timely access to inputs through the Zim-AIED input scheme, the presidential input scheme, and improved linkages with input suppliers. The 2013-14 agricultural season was exceptionally good for maize in all dryland maize producing areas.

**Paprika**. Overachieved by 112 percent against a target of $1,125 per hectare because of better market prices, increased adoption of GAPs, and inputs financing via partner MFI, Virl. The growing competition among buyers caused a 51 percent increase in the average price, from $1.24 per kilogram in FY2013 to $1.87 per kilogram in FY2014. This growth can be attributed to the industry-wide approach adopted by Zim-AIED in FY2014, which resulted in seven commercial buyers competing for produce versus only one buyer in FY2013. The broad engagement of MFIs like Virl also facilitated improved access to quality inputs, which was critical to achieving high yields with more than 90 percent of the crop sold as Grade A.

**Banana**. Overachieved by 73 percent against a target of $3,500 per hectare. All tissue-cultured banana plantations in Mutema, Chibuwe, Musikavanhu, and Honde Valley came into full production in FY2014 while production from old plantations in Rusitu and Honde Valley improved significantly after Zim-AIED promoted GAPs. Farmers in all program areas achieved higher yields and consistently supplied quality bananas, resulting in an average price of $0.27 per

kilogram, although tissue-cultured bananas from Honde Valley, Mutema, and Chibuwe fetched prices ranging from $0.33 to $0.35 per kilogram. FY2015 saw the highest average yield of almost 30 tons per hectare as new fields planted with suckers from tissue-cultured plants came under production. Gross margins, however, declined from last year following a 12 percent drop in prices.

## 3.4 FINANCE AND CREDIT

To achieve the four Feed the Future indicators listed below, Zim-AIED provided funds and technical assistance for a $2.85 million revolving credit facility, AgriTrade.

- *FTF 4.5.2-11 No. of …private enterprises (for profit)… receiving USG assistance.*
- *FTF 4.5.2-29 Value of agricultural and rural loans*
- *FTF 4.5.2-38 Value of new private sector investment in the agriculture sector….*
- *FTF 4.5.2-43 No. of firms engaged in agriculture …operating more profitably…*

Three partner banks (MicroKing, Trust Bank, and CABS) operated AgriTrade's revolving credit facility under a wholesale loan agreement, whereby the banks borrowed funds at 0 percent interest and targeted dollar-for-dollar match funding with their own resources. The funds were then used to extend loans to agribusinesses that supply inputs and buy agricultural commodities from smallholder farmers on communal land in Zim-AIED's geographic areas of operation.

Since inception in May 2011, the AgriTrade Facility disbursed 1,746 loans worth $15.33 million. The total value disbursed grew steadily over the first three years, increasing by 111 percent from FY2011-FY2012 (Table 3.4.1). Active commitments peaked in FY2013, and then gradually declined in FY2014 and FY2015 as the facility ended and partner banks repaid the capital lent by Zim-AIED.

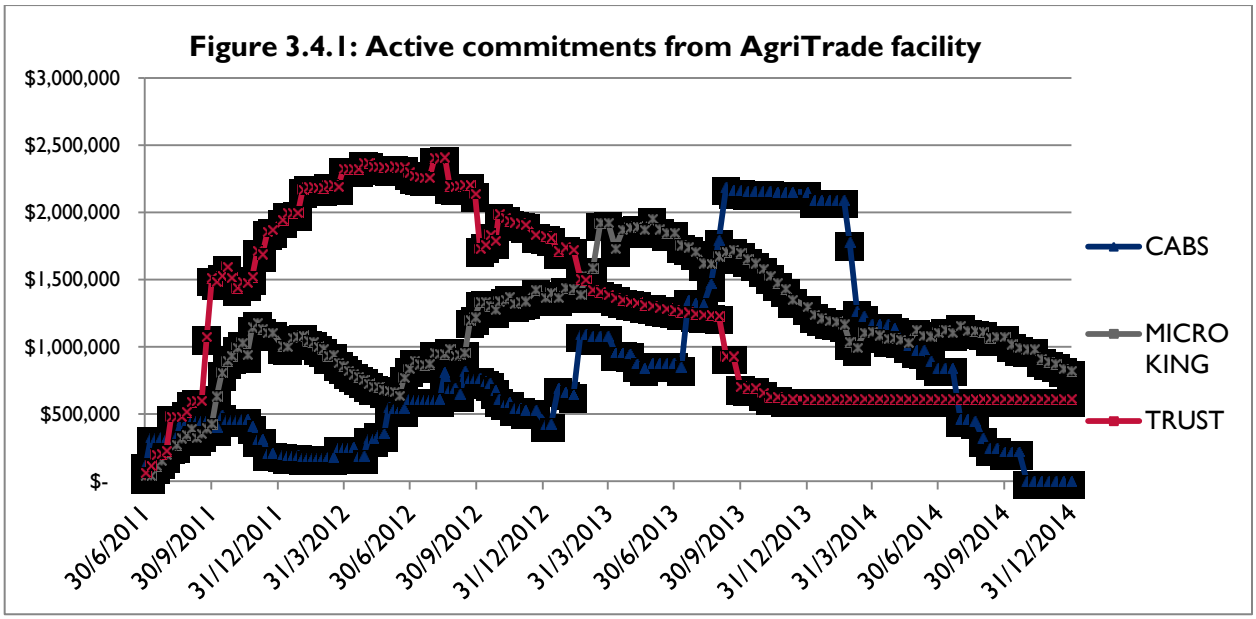
**Table 3.4.1: AgriTrade Loan Portfolio Throughout LOP**

| | FY2011 | FY2012 | FY2013 | FY2014 | FY2015 | Cumulative Disbursed |
|---|---|---|---|---|---|---|
| Amount of Loans Disbursed | $2,539,400 | $5,376,002 | $6,023,493 | $1,377,504 | $16,750 | **$15,333,148** |
| Number of Loans Disbursed | 237 | 641 | 621 | 244 | 3 | **1,746** |
| Average Loan Size | $10,715 | $8,387 | $9,700 | $5,646 | $5,583 | **$8,782** |

The high uptake of AgriTrade loans in the first three years can be partially attributed to the lower interest rates offered by partner banks: 11 percent per annum for loans above $10,000 and 24 percent per annum for loans of $10,000 or less, compared to 60 percent per annum for loans offered by the majority of Zimbabwean banks during the same period.

However, the downward trend observed in FY2014 and FY2015 was partly due to Trust Bank's closure in December 2013 after losing its banking license because of liquidity challenges in 2012 and 2013. CABS and MicroKing's AgriTrade portfolios became inactive in September 2014 and January 2015, respectively, after both institutions transferred new and repeat AgriTrade borrowers to their internal portfolios, following full repayment of the USAID loan capital extended to them.

The three AgriTrade partners accessed a total USAID loan capital disbursement of $3,759,500 during the tenure of the program (Figure 3.4.1). MicroKing contributed 51 percent of total cumulative disbursements, Trust Bank 25 percent, and CABS 24 percent. CABS and MicroKing have fully repaid their USAID loan capital, while Trust Bank has an outstanding balance of $771,516.




Trust Bank's active commitment reached a high of $2.4 million in August 2011; CABS achieved $2.2 million in September 2013; and MicroKing peaked at $2.0 million in May 2013 (Figure 3.4.2). MicroKing was the most consistent in disbursing new and repeat loans, with the final disbursement in December 2014. Trust Bank's last disbursement under AgriTrade loans was in January 2013, prior to losing its banking license. CABS finalized its AgriTrade lending in September 2013 and transferred all active loans to its internal portfolio.

**MicroKing**. MicroKing disbursed 1,641 loans valued at $7.84 million (Table 3.4.2) from June 2011 to December 2014. The highest volume, 605 loans valued at $3.13 million, was disbursed in FY2013, while FY2015 saw the lowest output with only three loans worth $16,750. Loans under $5,000 accounted for 81.8 percent of MicroKing's total portfolio, followed by 16.2 percent between $10,000 and $50,000, and only 2.0 percent above $50,000.

MicroKing preferred to focus on micro-lending (under $5,000) to small and medium rural enterprises. A strong rural presence with branches throughout Mashonaland East, Midlands, Bulawayo, Manicaland and Masvingo provinces allowed MicroKing to better access and service the rural population. More than 90 percent of its AgriTrade loans were disbursed to borrowers based in rural areas.

With Zim-AIED's support, MicroKing participated modestly in direct lending to smallholder farmers. Of its total disbursements, only 96 loans valued at $44,050 went towards smallholder crop production, beginning in October 2012. Farmers at Chitora 1 and 2 irrigation schemes in Mutoko district of Mashonaland East accessed 65 loans valued at $30,400 for horticultural crop production, while farmers at Musikavanhu irrigation scheme in Chipinge district of Manicaland accessed 26 loans worth $11,150 for sugar bean production and five loans worth $2,500 for horticultural crop production.

MicroKing was financially stable for the majority of AgriTrade's tenure and maintained on average a greater than 1:1 match of its funds against the USAID loan capital. The MFI fully repaid the USAID loan capital of $1,659,500 by January 2015. MicroKing's parent company, AfrAsia Bank, began to experience serious liquidity challenges in FY2014 and eventually lost its banking license in February 2015. MicroKing now operates independently while continuing to seek out new investors.

**CABS**. This bank disbursed 20 loans valued at $3.63 million (Table 3.4.2) from July 2011 to September 2013. Given strict requirements for immovable collateral as security on all loans, CABS preferred to disburse loans above $50,000. Loan sizes ranged from $50,000-$500,000. CABS

disbursed its highest number of loans (nine) valued at $2.14 million in FY2013 while only four loans valued at $450,000 were disbursed in FY2015. Although CABS was the strongest financially of the three AgriTrade partners, its portfolio generally had a lower than 1:1 match of USAID funds throughout the program.

In FY2014, CABS took over direct financing of tissue-cultured banana producers on the Chibuwe and Mutema irrigation schemes in Chipinge district (Manicaland) under its internal portfolio. The deal included all 441 farmers that previously benefited from the Zim-AIED/Matanuska partner fund agreement, thus extending a total capital investment loan facility of $504,027 and effectively repaying the outstanding debt that farmers owed Zim-AIED. Farmers are also able to access loans to purchase inputs via a six-month, $600,000 revolving working capital facility.

CABS suspended new AgriTrade loan disbursements in early FY2014 and began to repay its USAID loan capital of $500,000 in quarterly installments of $100,000. All funds were fully repaid by September 30, 2014. Simultaneously, the bank transferred financing of new and repeat borrowers to its small and medium enterprises department, which charges 16-22 percent annual interest rates.

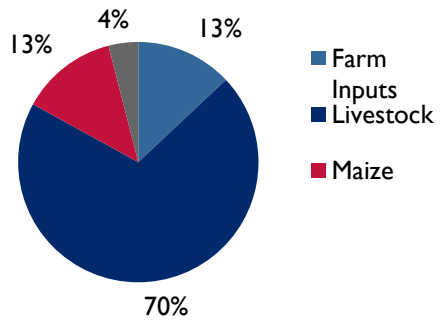
**Trust Bank**. A total of 85 loans valued at $3.85 million were disbursed from July 2011 to January 2013. The majority of loans ranged between $10,000 and $50,000. Trust Bank disbursed its highest number of loans (44) valued at $1.59 million in FY2012 and the lowest number and value in FY2013 (7 loans worth $754,000).

Trust Bank showed an increasing trend in the number and value of loans disbursed in FY2011 (34 loans worth $1.51 million) and FY2012 (44 loans worth $1.59 million). Despite this high volume, Trust Bank had a less than 1:1 match of USAID funds for the majority of AgriTrade's tenure because of liquidity challenges starting in FY2013. Consequently, borrowers started leaving Trust Bank and accessing loans from other participating AgriTrade banks. The bank then set withdrawal limits for individual and corporate clients, which resulted in a serious depositor run.

In October 2012, Zim-AIED instructed the bank in writing to start making repayment of the USAID loan capital in monthly installments of $50,000 until funds were restored to the required 1:1 match in active portfolio. However, the bank only managed to repay $100,000 between October 2012 and June 2013. At the same time, it also failed to meet the new $25 million capital requirement by December 31, 2012 as stipulated by the Reserve Bank of Zimbabwe. Failing to make any meaningful deposits to Zim-AIED's account, Fintrac exercised its contractual right to recover any outstanding loan amount by directly collecting loan repayments from individual AgriTrade borrowers. Through this method, a total of $478,000 was collected between July 2013 and December 2013.

The Reserve Bank of Zimbabwe ultimately cancelled Trust Bank's banking license in December 2013 over allegations of abuse of depositors' funds and violation of the Banking Act. As of December 31, 2013, the USAID loan capital owed by Trust Bank amounted to $771,516. Of this value, $613,819 represents the AgriTrade active portfolio at the time (i.e. the actual loan value not yet repaid by AgriTrade borrowers). The balance of $157,697 represented funds repaid by AgriTrade borrowers to Trust Bank but not remitted to Zim-AIED. Following the bank's closure, Zim-AIED has pursued, unsuccessfully, multiple legal routes to collect the outstanding USAID funds.

**Figure 3.4.2: Commodities Purchased Since Inception**




**Commodities purchased**. The cumulative value of commodities purchased under the AgriTrade facility reached $29.65 million by the end of the program. Major commodities traded

include livestock (70 percent), farm inputs (13 percent), maize (13 percent), and potatoes (4 percent).

Livestock sales dominated recorded purchases mainly because the police closely track cattle trading. Thus borrowers could provide more accurate records of cattle sales compared to crop sales (not controlled by the government).

Recorded purchases of farm inputs included seed, fertilizers, and PERSUAP-compliant agrochemicals. Rural agrodealers often borrowed funds to purchase and resell these inputs to various smallholder farmer groups on irrigation schemes and in dryland areas, many of whom were Zim-AIED beneficiaries.

**Direct Lending to Farmers.** In August 2013, Zim-AIED began to link smallholder farmers receiving training and technical assistance to targeted banks and MFIs interested in partnering with Zim-AIED to access the best producers and directly extend them loans for inputs. By May 2015, 2,502 loans valued at $1,059,024 were disbursed directly to smallholder farmers.

This activity began modestly in FY2013 with Untu Financial Services disbursing 11 loans worth $3,000. By FY2014 the number and value of loans disbursed increased by 9,981 percent and 9,060 percent, respectively, then dropping by 23.8 percent and 15.2 percent in FY2015. The reduction in recorded loans to smallholders in FY2015 was mainly due to limitations of the Zim-AIED program in being able to track all loans issued through the end of the fiscal year.

The rise in the number and value of loans disbursed in FY2014 and FY2015 was the result of five entrepreneurial financial institutions willing to explore new territory and inject their own capital resources into smallholder financing, namely Virl Financial Services, Quest Financial Services, Untu Financial Services, Agribank, and Inclusive Financial Services.

**Direct Lending**

Zim-AIED identified access to input finance as a major constraint facing smallholder farmers and successfully linked them to financial and microfinance institutions (CABS, Agribank, MicroKing, Quest, Untu, and Virl) who disbursed 2,502 loans valued at $1,059,024 during the LOP. By purchasing inputs on time, farmers realized dramatic increases in yields and quality and fetched higher prices from improved produce.

Virl Financial Services was the most consistent in loan disbursements, totaling 879 loans valued at $258,000 by May 2015; Agribank ranked second and disbursed 495 loans valued as $138,000, Quest (438 loans worth $83,000), Untu Capital (139 loans worth $24,000), and Inclusive (14 loans valued at $7,000). All partners disbursed in-kind inputs loans instead of cash loans to prevent the diversion of cash toward non-agricultural activities.

Agribank offered the lowest interest rates at 18 percent per annum, followed by Untu (30 percent), Quest (36 percent), Virl (48 percent), and Inclusive (60 percent). Agribank, a 100 percent government-owned commercial bank, took advantage of state-financed funds to provide loans at low interest rates.

The bank also waived collateral requirements for smallholder farmers accessing agricultural loans in groups, either on irrigation schemes or in dryland areas. The MFIs charged higher interest rates because they borrow capital from the financial sector at free market rates. All four MFIs also accessed capital from the UK Department for International Development-funded Zimbabwe Microfinance Wholesale Facility (ZMWF) at from 9-15 percent per annum interest rates. The disparate interest rates was largely due to differing size and value of each MFI's loan book and the cost of monitoring and recovering loans that varied by distance of nearest branch from smallholder farming areas.

The four MFIs were particularly attracted to financing smallholder farmers because of the typically poor repayment rate of non-agricultural borrowers receiving consumer and salary loans in urban areas. With the poor performance of the Zimbabwean economy, many companies failed to pay employees or became insolvent, which resulted in high default rates, thus forcing MFIs to diversify into agriculture. Zim-AIED

identified this new prospect and steered MFIs into program areas that presented the best business opportunities for all parties involved.

The major products financed included bananas, paprika, tabasco chilies, sugar beans, horticultural crops, livestock, and maize. Livestock activities focused primarily on purchasing improved cattle breeds and pen fattening of existing herds. Both Inclusive and Quest pioneered financing for cattle pen fattening projects at the Tshongokwe irrigation scheme in Matabeleland North during FY2015.

Quest initiated the financing of dryland maize production in FY2014 with 208 loans valued at $54,459. Quest also incorporated a weather-indexed insurance against drought in partnership with Zimnat Life Insurance Company, who charged farmers annual premiums of 5-9 percent depending on vulnerability to drought. This was critical to preventing loan defaults by farmers in the FY2014 season that suffered crop failure caused by erratic rainfall and a mid-season drought. The dryland areas assisted included Goromonzi, Murewa, Guruve, and Hurungwe districts.

In Chipinge, after the rapid success of smallholder banana production, Zim-AIED facilitated CABS to offer a direct loan buy out worth $504,027 for 441 smallholder farmers contracted with Matanuska.

**Table 3.4.3: Direct Lending to Farmers as of May 2015**

| Province | Location | Crop financed | Beneficiaries | Total Disbursements |
|---|---|---|---|---|
| **Virl Microfinance** | | | **879** | **$258,082** |
| Manicaland | Tombo | Paprika | 51 | $16,257 |
| | Nedziwa | Paprika | 90 | $26,769 |
| | Nyamaropa | Paprika | 76 | $23,574 |
| | Musikavanhu | Paprika, maize sugar bean | 140 | $28,436 |
| | Chiendambuya | Paprika | 50 | $17,552 |
| | Nyakomba | Paprika | 37 | $11,400 |
| | Sabvure | Paprika | 29 | $6,260 |
| | Honde Valley | Bananas | 135 | $44,656 |
| Mashonaland East | Nyaitenga | Horticultural crops | 48 | $21,089 |
| | Chipo | Horticultural crops | 45 | $22,002 |
| | Chinyika | Potatoes | 12 | $5,880 |
| | Chitora I, II & III | Horticultural crops | 33 | $10,148 |
| Masvingo | Hama Mavhaire | Sugar bean, potatoes, green mealies | 50 | $13,724 |
| Matabeleland North | Silalabuhwa | Sugar bean | 27 | $4,095 |
| Midlands | Exchange | Sugar bean | 56 | $6,240 |
| **Agribank** | | | **495** | **$138,550** |
| Matabeleland North | Lukosi | Potatoes | 20 | $10,400 |
| Manicaland | Taona | Sugar bean | 69 | $13,713 |
| | Musikavanhu | Sugar bean | 137 | $27,674 |
| | Honde Valley | Bananas | 129 | $50,363 |
| Matabeleland South | Moza | Sugar bean | 100 | $10,800 |
| | Makwe | Potatoes | 40 | $25,600 |
| **Untu Capital** | | | **139** | **$24,045** |
| Midlands | Ngondoma | Sugar bean, green mealies | 79 | $13,742 |
| | Insukamini | Sugar bean | 47 | $7,022 |
| | Gokwe South | Maize | 13 | $3,281 |
| **Quest Financial Services** | | | **438** | **$83,370** |
| Mashonaland Central | Hurungwe | Maize, Paprika | 99 | $26,097 |
| | Guruve | Maize | 46 | $12,108 |
| Mashonaland East | Mbomane | Horticultural crops | 18 | $5,560 |
| | Murewa | Maize | 39 | $10,062 |
| | Goromonzi | Maize | 24 | $6,192 |
| Matabeleland South | Silalabuhwa | Potatoes, green mealie, horticultural crops, sugar bean | 76 | $8,886 |
| | Makwe | Green mealies, horticultural crops | 31 | $2,952 |

**Table 3.4.3: Direct Lending to Farmers as of May 2015**

| Province | Location | Crop financed | Beneficiaries | Total Disbursements |
|---|---|---|---|---|
| Matabeleland North | Fanisoni | Green mealies | 40 | $4,429 |
| | Tshongokwe | Green mealies, horticultural crops | 55 | $6,008 |
| | Tshongokwe | Cattle | 10 | $976 |
| **Inclusive Financial Services** | | | **14** | **$7,000** |
| Matabeleland North | Tshongokwe | Cattle | 14 | $7,000 |
| **MicroKing Finance** | | | **96** | **$44,050** |
| Mashonaland East | Chitora 1& II | Horticultural crops | 30 | $12,900 |
| | Chitora I & II | Cherry pepper | 35 | $17,500 |
| Manicaland | Musikavanhu | Sugar bean, horticultural crops | 31 | $13,650 |
| **CABS** | | | **441** | **$504,027** |
| Manicaland | Chibuwe/Mutema | Bananas | 441 | $504,027 |
| **TOTAL** | | | **2,502** | **$1,059,024** |

## 3.5 BUSINESS DEVELOPMENT

Throughout the program, business development services (BDS) contributed directly to all Zim-AIED results. BDS activities aimed to assist program beneficiaries in identifying permanent opportunities for increased income. To that end, Farming as a Family Business (FAAFB) trainings focused on:

- **Farmer organization -** Building the capacity of groups to manage key functions to lower transaction costs. The organized groups were trained in key managerial duties that foster good governance, underpinned by the following principles: constitution making, conflict resolution, budgeting, group marketing, recordkeeping, and financial accounting.
- **Developing basic business skills -** Promoting the measurement, recording, and analysis of costs and profits as a basis for sound agricultural investment decisions.
- **Facilitating contract farming arrangements -** Clarifying/defining roles and responsibilities of each party (producers and buyers) to proactively establish effective methods and protocols to minimize default.
- **Improving credit management and control -** Designing group lending models that provided co-guarantees as a security option for accessing commercial loans.
- **Facilitating market linkages** - lowering transaction costs by linking organized farmer groups to input, output, and financial markets.
- **Introducing farmer-led extension systems** - Training lead farmers to establish a permanent knowledge/skills base in the community to promote the sustainable adoption of good agricultural and business practices.
- **Gender integration** - Promoting the whole family approach to managing farms as family businesses.

Zim-AIED provided technical support on governance, administration, and other group-specific management functions to leadership of existing and new farmer groups. For the essential business skills necessary to penetrate formal markets and become viable commercial players, farmers received training in groups on group dynamics, enterprise budgeting, contract management, credit control, recordkeeping, risk management, and marketing principles.

To ensure all targeted farmers adopted good business and agricultural practices regardless of their scale, all activities cooperated with private sector partners or NGOs linked to for-profit companies. Some of these partners were subgrantees or subcontractors to Zim-AIED while others were input suppliers, service providers, lenders, and buyers of farm products that collaborated with Zim-AIED using their own funding.

Central to an effective roll out of these activities was a conscious strategy to ensure sustainability upon program end. Therefore, AGRITEX, DOI, LPD, Veterinary Services, partner field staff, and farmer group leaders co-facilitated all training activities. Further, local leaders – particularly ward councilors and village heads – helped vet farmers for contract farming and group lending schemes.

**Summary of BDS Achievements over LOP**

- Provided 54,099 unique beneficiaries (53% women) with FAAFB training.
- Provided 512 group leaders with leadership skills training and technical support.
- Improved local institutional capacity in 72 farmer groups
- Aided the formation and strengthening of 13 new banana producer groups in Honde Valley.
- Established input market linkages for 10 farmers groups in the dryland cropping areas of Guruve, Hurungwe, Murewa, Goromonzi, and Gutu.
- Facilitated access to credit for 1,600 farmers through group lending models that provided group co-guarantees as security option for input loans.
- Mobilized lead farmers to pilot feedlot pen-fattening projects which increased animals' value by 150%.
- Improved group governance through amendments to Milk Collection Centre (MCC) constitutions at Tsonzo, Gokwe, and Mayfield.
- Established farmer-led extension systems in more than 100 agribusiness hubs across the country, leading to increased adoption of GAPs.
- Increased by 43 percent the number of women in key leadership positions thanks to gender mainstreaming through FAAFB trainings.

### *3.5.1 Technical Assistance and Training*

*FTF 4.5.2-11 Number of food security …organizations… receiving USG assistance*

Over the LOP, 1,167 organizations (mainly AgriTrade borrowers, producer associations, and irrigation management committees (IMCs)) received training and technical assistance from Zim-AIED and its partners.

To improve the utilization and fair distribution of water resources on irrigation schemes, leadership training was provided in key managerial duties. Zim-AIED facilitated stakeholder meetings that addressed weaknesses and threats diagnosed during scheme-specific performance evaluations. To that end, 322 IMC members from 30 irrigation schemes supported by Zim-AIED received training on constitution making, conflict resolution, negotiation skills, financial accounting and reporting, and action planning. The outcome of these trainings is summarized below:

- Eighteen irrigation schemes received assistance in reviewing and modifying their constitutions to include enforceable by-laws that improved group cohesion. For example, at Chipo irrigation scheme in Ward 25, Mutoko district (Mashonaland East), members adjusted their constitution to include a clause that recognizes the spouse of the deceased as an automatic heir to the irrigation plot to deal with recurrent inheritance conflicts. Consequently plots in the irrigation schemes are now registered in the names of both spouses. At Hama Mavhaire irrigation scheme in Ward 7, Chirumanzu district (Midlands), a newly drafted constitution resolved nagging water user rights conflicts. Notably, the IMC banned Claudius Mutunami from accessing irrigation water because of his large outstanding

water bill. When Mutunami defied the IMC directive, just like many farmers had done previously, the IMC, through powers authorized in the new constitution, repossessed Mutunami's watering siphons. Consequently, Mutunami reported the IMC to police for having forcibly taken his siphons and the case was reported and tried at Masvingo Magistrate's court. After the IMC presented the constitution used as the basis for penalizing a member, the magistrate upheld the IMC's actions and absolved it of any wrongdoing because it had acted within the confines of the group constitution (section 10.3.9 of the by-laws). Mutunami was therefore found the guilty party. Since then, farmers have significantly improved compliance with water bill payments.

- At Fanisoni irrigation scheme in Nkayi, Matabeleland North, farmers resuscitated their pumping unit by negotiating a deal with an irrigation service provider, CN Enterprises, who agreed to supply a good second-hand diesel powered pump upon receipt of a down payment of $1,800, with the balance of $1,000 to be repaid within three months. As a result, 15 hectares of previously idle land was brought back into full production, benefiting 54 households.
- With the support of Zim-AIED technicians, 144 farmers at Silalabuhwa irrigation scheme in Insiza, Matabeleland South engaged ZINWA, the national water authority, regarding outstanding water bill debts. After extensive negotiations to settle the arrears, the two parties resolved their disputes and agreed on a payment plan that guaranteed uninterrupted supply of irrigation water back to the scheme.
- A similar approach as above was used at Tshongokwe irrigation scheme in Lupane district (Matabeleland North), which corrected the faulty ZINWA billing system. After analyzing their water use records in 2014, the IMC discovered that they had been overpaying for irrigation water by 56 percent since October 2013. After engaging ZINWA on the issue, the IMC was able to reconcile the disparity.
- Iterative planning meetings were convened at Exchange irrigation scheme in Kwekwe district (Midlands) to resolve a leadership crisis that led to allegations by farmers of embezzlement of public funds by the IMC. With participation from senior government officials, the group decided that one of the local leaders, a ward councilor, must abstain from interfering in the management of the scheme. In addition, external auditors were engaged to review the group's accounts records and assets. The audit report highlighted loopholes in the constitution that allowed abuse of public funds. The group amended their constitution and the IMC is working to regain confidence from all members.
- Marketing committees were set up at Tshongokwe (Lupane), Fanisoni (Nkayi), Ngondoma (Kwekwe), Musikavanhu B2, B3 and B4 (Chipinge) that improved the flow of marketing information. For example during FY2014, the Musikavanhu B3 marketing committee managed to advertise their sugar bean crop in a local daily newspaper that attracted formal buyers for the crop. In the same vein, the marketing committees from Fanisoni and Tshongokwe struck deals with Heads and Hooves, an abattoir based in Bulawayo to provide free transport to ship their pen-fattened cattle for slaughter. At Chipo and Chitora irrigation schemes (Mutoko), marketing committees were instrumental in facilitating marketing of cherry peppers and fine beans for the export market to Selby and Lonrho respectively.
- Irrigation infrastructure maintenance funds were set up. Notable achievements include Ngondoma and Musikavanhu B3 and B4 irrigation schemes which managed to mobilize members to contribute towards the funds. The three schemes now have bank accounts for transparent management of their funds. At Chipo and Chitora, similar funds facilitated repair of broken-down equipment and replacement of old equipment.

Overall, the program's group self-evaluation tool that tracks performance on governance and administration indicated increased capacity and utilization at the schemes because of uninterrupted water. With stricter enforcement of the constitutions, members now pay their utility bills to the service providers (ZESA, ZINWA) on time. However, recordkeeping at the group level – critical to assessing progress – remains weak. To improve recordkeeping on irrigation schemes, AGRITEX and

DOI personnel have been persuaded to continue to provide training on the filing system model introduced by Zim-AIED.

A total of 70 farmer groups received training and technical assistance to build their capacity to manage key functions (constitution drafting, collective input procurement, and product consolidation) and lower transaction costs (Table 3.5.1).

**Table 3.5.1: Categories of Farmer Groups**

| Category of farmer group | Number |
|---|---|
| Irrigation Schemes | 30 |
| Banana Producer Groups | 18* |
| Input Procurement Groups | 10 |
| Feedlots | 5 |
| Milk Collection Centers | 4 |
| Nucleus Breeding Centers | 3 |
| **Total** | **70** |

* Excluding banana producer groups in Mutema and Chibuwe irrigation schemes.

In Honde Valley, 611 farmers (37 percent women) formed 13 banana producer groups. A total of 121 leaders drawn from these groups received training on constitution drafting, financial recording and reporting procedures, product consolidation, and conflict resolution. As a result, the groups have now adopted constitutions governed by a committee of nine elected leaders. These structures consist of three sub-committees: the General Assembly Table, the Operations Committee, and the Audit Committee. This division has ensured clear separation of duties and balance of power, thus minimizing conflicts. The cohesive groups now have the capacity to supply FAVCO with an average of 250-300 tons of good quality bananas per month across all 13 groups, up from 30 tons per month before Zim-AIED intervened. Thanks to the success of these group structures, competitors such as Jamfeb are also using the well-organized groups formed under Zim-AIED to procure bananas from Honde Valley.

As production increased, FAVCO started experiencing logistical hitches such as delays in collection of bananas and late payments to farmers. In response, farmers formed an umbrella body (Honde Valley Banana Producers Association) responsible for working with FAVCO to avoid these obstacles, such as quality loss, long waiting periods, and side marketing. The voluntary establishment of this umbrella body clearly indicates farmers have acquired the ability to self-organize when faced with challenges.

In Chipinge district, Zim-AIED provided training on banana budgeting and contract design and management to farmers at Mutema and Chibuwe irrigation schemes. As a result, Matanuska contracted 442 farmers to establish 100 hectares of tissue-cultured banana at Mutema and Chibuwe irrigation schemes. Zim-AIED advanced loans to contracted farmers for installation of micro-jet irrigation (Mutema) in addition to working capital. With the absence of a bank partner at the inception of the program, Matanuska managed the loan and then remitted farmer repayments to Zim-AIED. During FY2014, Zim-AIED convinced CABS to take over the farmers' outstanding debt to the Zim-AIED program and convert it to a bank-issued 24-month loan facility. Using lead farmers, Zim-AIED facilitated the smooth transition of farmers' capital loans under the Matanuska/Zim-AIED partner fund agreement (PFA) to CABS. A total of 24 lead farmers from Mutema and Chibuwe irrigation schemes spearheaded the process. The lead farmers successfully educated and convinced the rest of the 442 farmers to accept the loan transfers. All the contracted banana farmers have since opened bank accounts and signed loan facility letters with CABS. In addition, each of the 442 banana farmers can now access a six-month loan of $510 for working capital from CABS. Servicing of the two loans was through deliveries of bananas to Matanuska.

In Rusitu Valley, 525 farmers received training on group formation, marketing, and product consolidation, resulting in the formation of five banana marketing groups. The capacity building has improved the groups' ability to link with formal buyers and negotiate better prices for their bananas. As a result, more produce is flowing to major banana companies such as Sunspun and FAVCO, who are now buying 10-30 tons of bananas per week. Informal buyers are also procuring bananas from Zim-AIED groups as they are more organized.

*FTF 4.5.2-37 Number of micro-, small-, and medium-enterprises (MSMEs) receiving BDS*

Farmers and the agribusiness companies that partnered with Zim-AIED demanded training in business skills. Table 3.5.2 summarizes the number of farmers trained over the life of the program in six key thematic areas. In all cases, training directly supported business arrangements between farmers and private companies (buyers, lenders, and input suppliers) or in conjunction with productivity training. Overall, training on enterprise budgeting accounted for the highest number of farmers trained (28 percent), followed by recordkeeping (24 percent), farmer group organization and credit management (17 percent), marketing (7 percent), and contract management (6 percent).

**Table 3.5.2: Number of Farmers Trained by Subject – FY2011 to FY2015**

| Subject | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | M | F | M | F | M | F | M | F | M | F | Total |
| Collective/Group Marketing | - | - | 309 | 475 | - | - | 1,240 | 1,556 | 1,315 | 1,290 | 2,864 | 3,321 | 6,185 |
| Contract Management | - | - | 1,083 | 1,009 | 846 | 970 | 787 | 669 | 17 | 28 | 2,733 | 2,676 | 5,409 |
| Credit Management | 731 | 475 | 3,582 | 4,008 | 1,039 | 1,336 | 1,739 | 1,463 | 199 | 204 | 7,290 | 7,486 | 14,776 |
| Enterprise Budgeting | 3,612 | 3,119 | 3,182 | 4,071 | 1,940 | 2,121 | 2,743 | 2,676 | 91 | 62 | 11,568 | 12,049 | 23,617 |
| Farmer Group Organization & Management | 434 | 427 | 2,098 | 2,384 | 1,098 | 1,180 | 3,311 | 2,916 | 353 | 575 | 7,294 | 7,482 | 14,776 |
| Recordkeeping | 216 | 403 | 3,048 | 4,896 | 1,413 | 1,790 | 4,376 | 4,175 | 41 | 40 | 9,094 | 11,304 | 20,398 |

The BDS training program targeted early adopters, formal farming groups, contracted farmers, loan recipients, and irrigation schemes to demonstrate the positive impact BDS skills can have on production and sales, thus increasing the demand for more training from other farmers.

At the household level, farmers received FAAFB training, which promotes the recognition of family members as important stakeholders. Accordingly, training was open to all adults within the family.

Snap surveys conducted at the beginning of each training session to assess adoption rates indicated that adoption of recordkeeping was highest among cattle herders operating feedlots (estimated at 96 percent), with dairy farmers coming second (estimated at 65 percent). This relatively impressive rate of adoption can be partly attributed to the printed record books provided by Land o' Lakes. The banana farmers in Honde Valley had the third highest rate of recordkeeping (estimated at 52 percent), with more women than men keeping up-to-date daily cash records. Adoption of daily cash records was still low by the end of FY2014 among banana growers in Mutema, Musikavanhu and Chibuwe irrigation schemes in Chipinge (estimated at 22 percent). This result could be due to the contract farming arrangement whereby Matanuska directly maintained most records. To address this issue, farmers learned how to keep all transaction documents in archived files.

Farmers on irrigation schemes and in dryland areas growing either staple or high-value crops showed the least adoption at less than 15 percent, despite experiencing multiple scenarios that demonstrated how up-to-date records can assist farmers in assessing the performance of their enterprises and enabling prudent business decisions. For example, records in Chibuwe showed that farmers were using a seed rate inflated by 15 kilograms which translated to an unnecessary additional cost of $42 per hectare. Similarly, analysis of daily cash records in Honde Valley showed

that farmers who did not buy fertilizers after FAVCO support ended realized a 40 percent decrease in bunch weight.

To encourage recordkeeping, Zim-AIED promoted a simple daily cash record that could still comprehensively capture all relevant information required to make prudent business decisions. To this end, Zim-AIED facilitated procurement of stationery, notably arch lever files, hard cover books, and glue for sticking receipts on papers. In addition, Zim-AIED sought the involvement of other household members, who may perhaps possess better literacy, to improve recordkeeping.

The program advocated for AGRITEX to mandate recordkeeping as a pre-requisite for a farmer to participate in competitions with agricultural prizes at local, regional, and national levels. Farmers learned records are a pre-requisite for obtaining credit from MFIs and banks.

To sustain improved access to inputs at fair prices achieved through contract farming, Zim-AIED devised a two-pronged approach. First, farmers were linked to banks and microfinance institutions to access input loans at commercial rates. Second, farmers were linked directly to input suppliers. At irrigation schemes and dryland agribusiness hubs, Zim-AIED collaborated with three MFIs (Virl Financial Services, Untu Financial Services and Quest Financial Services) and one bank (Agribank) to train farmers in credit control with emphasis on group co-guarantees as a security option for receiving input loans. Zim-AIED assisted the groups to craft constitutions that governed individual loan repayment behavior in these groups. As a result, 1,632 farmers accessed individual loans to finance production of crops and livestock. The majority, about 90 percent of the farmers (and 96 percent of loan value), have repaid the loans, making them creditworthy to continue accessing working capital essential for them to maximize their profits.

Input market linkages with Windmill, Profert, Nico Orgo, SeedCo, Pioneer, and Klein Karoo for 10 farmer groups in the dryland cropping areas of Guruve, Murewa, Goromonzi, Hurungwe, and Gutu complemented the direct lending to individual farmers from banks. Collectively, the groups mobilized cash to procure fertilizer worth $43,199 from Windmill and Nico Orgo during the 2013/14 and 2014/15 cropping seasons. Zim-AIED also linked farmers in Chipinge district to ZFC, an agro-chemical company supplying fertilizer. As a result, ZFC supplied stocks to Matanuska on consignment; cumulatively, 147 tons of basal and top dressing fertilizer with a sales value of $98,520 was bought in the Chibuwe and Mutema agribusiness hubs during the 2014/15 agricultural year. Further, private sector companies are providing ongoing support to clients via technical advice on how to safely use the different agro-chemicals for sale.

The transparent accounting system has boosted group members' confidence, resulting in high adoption. Of note, the groups from Guruve have continued with the model for two consecutive seasons with minimum support from the program. In Guruve, AGRITEX has adopted the model and expanded it to four new wards. In Goromonzi, the group has also expanded from 150 members in FY2014 to more than 300 members now subscribed for the 2015/16 season.

At Tshongokwe irrigation scheme in Lupane, Zim-AIED introduced feedlot technology to nine farmers who inducted 14 animals for pen fattening over a 66-day period. After receiving training on feedlot budgeting, recordkeeping, marketing and good animal husbandry practices, farmers managed to improve the general body condition of the animals and increased returns on sales. One farmer realized a net income of $870 compared to the local average of $300 for a beast finished from the veld. To scale up the lucrative pen-fattening activities, two farmer-owned and four community-owned feedlots were established at Fanisoni (Nkayi), Zamalokhu, Zenzele (Lupane), and Ngondoma (Kwekwe).

In Mangwe district, Matabeleland South, Zim-AIED collaborated with TBT, a local organization, to train 496 farmers on enterprise budgeting. Another set of 80 para-veterinary officers received basic business management training. The paravets play a critical role in the livestock value chain through provision of basic veterinary services to local livestock farmers at a nominal fee.

In addition, 200 farmers from Nucleus Breeding Centers in Lupane and Nkayi districts of Matabeleland North received training on loan management, and specifically the cost-benefit analysis of the cash and cull beast exchange model promoted in the heifer and bull exchange scheme. As a result, 77 farmers could purchase heifers using this exchange facility, guaranteeing improved genetics in their herds.

At Tsonzo MCC in Mutasa district, Zim-AIED assisted the leadership to review and modify the outdated constitution to increase membership twofold. With more farmers delivering milk, the MCC now supplies an average of 220 liters of milk, up from previous volumes of 45 liters per day.

A total of 59 MCC members from Upperand, Mayfield, Paidamoyo and Goshen in Rusitu Valley (Chimanimani) received leadership training on budgeting and constitution drafting. The training equipped Paidamoyo, Upperand, and Goshen with managerial skills necessary for the MCCs to operate as autonomous entities. The three new MCCs emerged from the parent Mayfield MCC after failing to resolve nagging historical conflicts.

In Midlands, the Gokwe MCC received a grant from United States African Development Fund (USADF) and used the money to buy a tractor and forage harvester and chopper. Zim-AIED provided technical assistance to develop a cost recovery business model for operating and maintaining the tractor. The group has since adopted the proposed business systems, such as using logbooks to monitor mileage and hours of operation. A tractor-driven forage harvester is set to improve animal nutrition and subsequently milk yields, which are currently averaging 12 liters per cow per day – up from previous yields of four liters per cow per day.

After an analysis of farmers' records from the Rusitu (Chimanimani) and Tsonzo (Mutasa) MCCs showed that dairy cows were not performing to their full genetic potential because of inadequate feed, Zim-AIED linked Tsonzo MCC to Windmill to buy fertilizers using a flexible payment arrangement. The MCC opened a bank account to make installment payments on inputs required for fodder production. This group input procurement initiative enabled dairy farmers to establish 23 hectares for 405 tons of fodder, which resulted in a 30 percent reduction in milk production costs.

**Contract farming.** Farmers contracted to Zim-AIED partners (Table 3.5.3) received specific training on enterprise budgeting and contract design and management. The training empowered 11,640 farmers to clearly understand contractual obligations before committing themselves to any agreement.

**Table 3.5.3: Number of Contracts Issued – FY2012 to FY2015**

| Partner | Product | Male | Female | Total |
|---|---|---|---|---|
| FAVCO | Banana | 1,202 | 846 | 2,048 |
| Matanuska | Banana, sugar beans | 2,147 | 1,955 | 4,102 |
| Capsicum | Paprika | 1,755 | 1,824 | 3,579 |
| Better Agriculture | Tabasco & ABE chilies | 554 | 674 | 1,228 |
| O'Neam Meats | Maize & soya beans | 461 | 478 | 939 |
| Lonrho | Fine beans | 36 | 5 | 41 |
| ZFAT | Maize | 490 | 530 | 1,020 |
| Selby | Cherry pepper | 76 | 80 | 156 |
| Inala Enterprises | Beef cattle | 81 | 76 | 157 |
| SAT | Staple crops | 859 | 599 | 1,458 |
| Windmill | Staple crops | 1,128 | 1,222 | 2,350 |
| Prime Seed | Groundnuts | 2,046 | 2,046 | 4,092 |
| FSG | Sugar bean | 48 | 52 | 100 |
| Livestock Zone | Beef cattle | 30 | 3 | 33 |
| Zim-AIED demo farmers | Horticulture | 311 | 226 | 537 |
| Zim-AIED demo farmers | Beef cattle | 24 | 6 | 30 |
| **Total number of contracts issued** | | **11,248** | **10,622** | **21,870** |

Farmer repayment of input loans across PFAs produced mixed results, which reflects differences in contract management by the partner organizations. For example, some buyers did not exercise adequate due diligence and selected non-entrepreneurs for contracting. In other cases, the absence of field staff from the contracting companies to coordinate loan recovery falsely led farmers to believe the inputs were for free. Farmers growing Tabasco and ABE chilies, pen-fattening cattle, and participating in the heifer and bull exchange programs achieved 100 percent loan repayment while those growing bananas, staple products, and paprika have achieved to date repayments of 79 percent, 47 percent, and 27 percent, respectively.

### *3.5.2 Investment*

*FTF 4.5.2-38 Value of new private sector investment…leveraged by FTF implementation*

Partners and agrodealers participating in the agricultural sector throughout the LOP invested $11.68 million, which is 16 percent above the target of $10 million. AgriTrade borrowers contributed 62 percent of the total investment. AgriTrade borrowers invested in their facilities to a higher level than predicted despite operating in an environment characterized by political risk, potential forfeiture of businesses, and liquidity challenges.

Partners invested $4.39 million; the main contributors were Matanuska ($502,349), Capsicum ($339,457), Inala Enterprises ($284,154), FAVCO ($166,342), and Better Agriculture ($121,433). Investments made by partners covered a wide spectrum of items such as livestock, refurbishments, pack sheds, vehicles, water pumps, and abattoirs.

### *3.5.3 Profitability*

*FTF 4.5.2-43 Number of firms …now operating more profitably because of USG assistance*

Throughout the course of the program, 31 firms reported operating more profitably against a target of 50 firms, which was 38 percent below target. Primarily, increasing production costs and the crippling macroeconomic environment inhibited increased profit positions throughout the program; only a handful of companies reported increased profit margins.

### *3.5.4 Employment*

*FTF 4.5-2 Number of jobs attributed to FTF implementation*

The program had anticipated to create at least 11,200 full-time equivalent jobs by close out. Given the harsh economic environment marred with uncertainty and jobholder depreciation, the program was able to generate 1,609 full-time job equivalents (85 percent below target).

### *3.5.5 Technology Adoption*

*FTF 4.5.2-42 Number of …organizations… that applied new technologies or management practices*

Enterprises that applied new technologies or management practices included buyers (1,090), irrigation schemes (42), partners (26), producer groups (5), and MCCs (4), which altogether exceeded the LOP target of 717 by 63 percent.

## 3.6 PRODUCTIVITY

Zim-AIED's technical team along with partners' field extension officers carried out productivity interventions in crop agronomy, irrigation, livestock management, and postharvest processing throughout the life of the program. Trainings and technical assistance focused on both target crops such as maize, sugar bean, banana, and paprika as well as secondary crops such as groundnut, local and export vegetables, and sweet potato. The livestock team targeted beef and dairy cattle and integrated its activities more closely with traders accessing credit from the AgriTrade facility and the agronomy teams working around irrigation schemes. Grants under the Smallholder Technology Fund and subcontracts and subgrants with Zim-AIED partners SAT, Matanuska, FAVCO, Better Agriculture, Zero One Africa, O'Enem Meats, and Inala Enterprises provided additional technical and marketing resources to enhance productivity.

**Agribusiness Hubs**

Zim-AIED established agribusiness hubs as demonstration centers to promote smallholder commercial agriculture by linking farmers with buyers and inputs suppliers, and providing technical assistance. Over the LOP, 50 agribusiness hubs in eight districts across the country supported smallholders.

Each hub had a central site for training and conducting field days, including a demonstration plot managed by an extension worker to teach GAPs to farmers. The agribusiness hub model included four to 15 lead farmers within a 10 kilometer radius from the central location, with each lead farmer contracted to grow either maize or legumes on 0.5 hectares. The contracted crop was supported with full inputs on a cost recovery basis.

These demonstration plots are practical learning sites where farmers learn and see the value of implementing the promoted GAPs. The hub also promotes trade and access to input and output markets and microfinance institutions.

Zim-AIED facilitated productive credit linkages between smallholder farmers and CABS, Quest Financial Services, Untu Capital, MicroKing, Agribank, and Virl Financial Services. Cumulatively, 1,965 input loans worth $510,946 were disbursed under the direct lending initiative.

Increases in productivity are monitored by three FTF indicators, summarized below.

*FTF 4.5.2-7 Agricultural sector training*

Training and technical assistance was provided to more than 140,000 farmers producing a wide range of crops (including banana, paprika, chilies, horticulture, maize, sugar bean, soy bean, cowpea, sweet potato, and groundnut) on seed dressing, herbicide for weed management, correct fertilizer application techniques, efficient irrigation management, integrated pest management, safe use of pesticides, postharvest technologies, and other GAPs.

*FTF 4.5.2-2 Area under improved technologies*

A total of 11,522 hectares came under new technology or management practices during FY2015, and 99,423 hectares continued to utilize the same technologies and management practices learned from Zim-AIED trainings and technical assistance adopted in the previous seasons. Maize, banana, paprika, and sugar bean all showed significant improvements in yield and productivity as a result of this high rate of adoption.

Around Zim-AIED established agribusiness hubs, a high uptake rate of GAPs continued where demonstration plots had been established and managed by lead farmers. Zim-AIED implemented the agribusiness concept for three or more consecutive seasons in many of the hubs, which has helped to reinforce the good practices and technologies promoted by the program.

*FTF 4.5.2-5 Farmers who have applied new technologies*

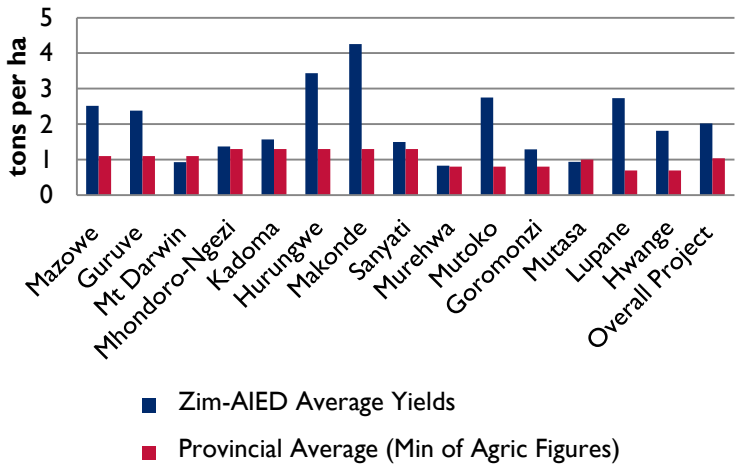
Across the life of the program, 106,472 smallholder farmers applied new technologies and management practices on their farms, of which 49,834 (47 percent) were women. By FY2014, direct lending for inputs to smallholder farmers scaled up significantly to support increased adoption of improved technologies.

Zim-AIED collaborated with the World Food Programme to procure seven hermetically-sealed maize storage cocoons and monitor their performance in pilot sites within Hurungwe and Gokwe South. The cocoons were monitored for oxygen levels and pest control, and assessed for overall utility to smallholder farmers. GrainPro, the manufacturer, provided valuable technical support services through their Zimbabwean agent, Farm & City. The cocoons showed complete control of storage pests and diseases four months after installation, allowing farmers to store their grain longer and sell when prices are high.

### *3.6.1 Staple Crops*

The program used production data collected from farmers and compared it with market demand and price information to select target crops and devise effective interventions for staples producers. Since program inception, maize has been the most important staple crop for the Zim-AIED program and raising production and productivity levels remained a major strategic objective throughout the five-year implementation period.

**Figure 3.6.1.1. Maize Yields from Farmers around SAT-managed Locations (2011/12 Season)**




Zim-AIED worked in partnership with SAT and private sector commercial companies to conduct structured trainings for staples farmers in dryland conditions. Field extension staff, comprised of Zim-AIED and partner technical staff, provided technical assistance on a full range of agronomic techniques, specifically emphasizing herbicide use, fertilizer application, crop budgeting, and marketing.

During the 2011/12 season, Zim-AIED, in partnership with SAT, established 80 demonstration plots in all provinces and provided training on GAPs to more than 30,000 dryland maize farmers. Demonstrated technologies included: correct application of fertilizers; use of organic manure, weed control methods, liming, and proper postharvest handling; and selection of suitable varieties.

Based on data collected for the 2011/12 season, training and technical assistance more significantly improved farmers' productivity than a contract agreement with private companies or even the availability of cheap or free inputs. The strong demand for maize coupled with Zim-AIED's effort to link AgriTrade borrowers to farmers at the village level meant the only advantage of growing under contract was the availability of inputs. However, many Zim-AIED-assisted growers without contracts also bought, or secured from other sources, the minimum inputs necessary to increase yields.

Although the yields achieved by Zim-AIED beneficiaries were impressive (94 percent above district averages), these results indicate a potential for continued improvement with intensification of practices learned. The demonstration plots achieved average yields of 4.67 tons per hectare, 3.2 times higher than the average Zim-AIED farmer and 4.9 times higher than all farmers in the same district.

The results summarized in Table 3.6.1.1 indicates the positive effect of technical assistance from private agribusinesses on the gross margins achieved by smallholder farmers in dryland areas. Farmers adopting GAPs obtained almost six times the gross margin of unassisted farmers.

**Table 3.6.1.1: Gross Margins of Maize Farmers in Mazowe District – 2011/12 Season**

| Partner | Input Costs ($/ha) | Average Maize Yields (ton/ha) | Gross Revenue (at $200/t) | Gross Revenue (at $240/t) | Gross Margin (at $200/t) | Gross Margin (at $240/t) |
|---|---|---|---|---|---|---|
| Windmill contracted farmers | 372 | 3.00 | 600 | 720 | $228 | $348 |
| O'Enem Meats contracted farmers | 369 | 2.28 | 456 | 547 | $87 | $178.2 |
| All SAT farmers* | 207 | 2.17 | 434 | 521 | $227 | $313.8 |
| Provincial Average** | 207 | 1.10 | 220 | 264 | $13 | $57 |

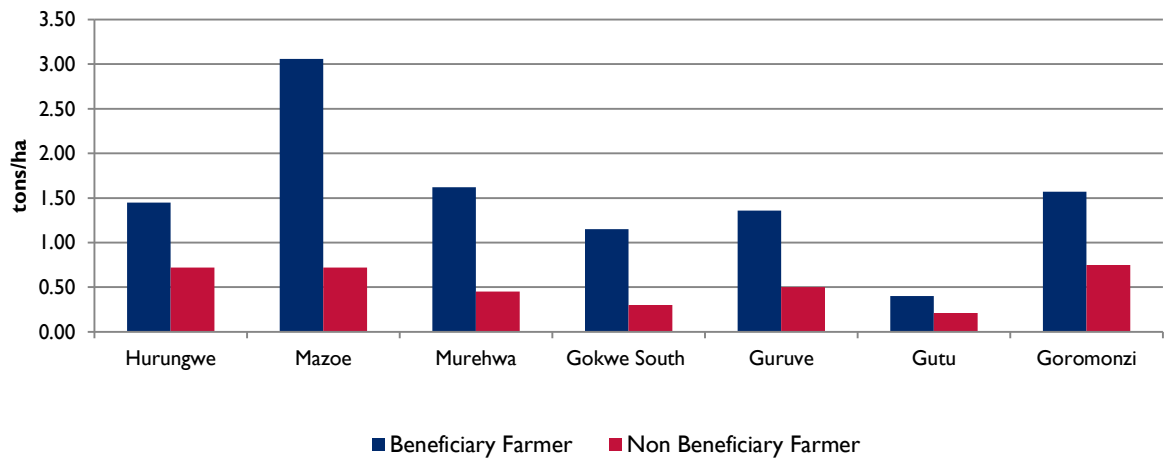
*Includes Windmill and O'Enem contracted farmers
**Average for all farmers in the province per MAMID data

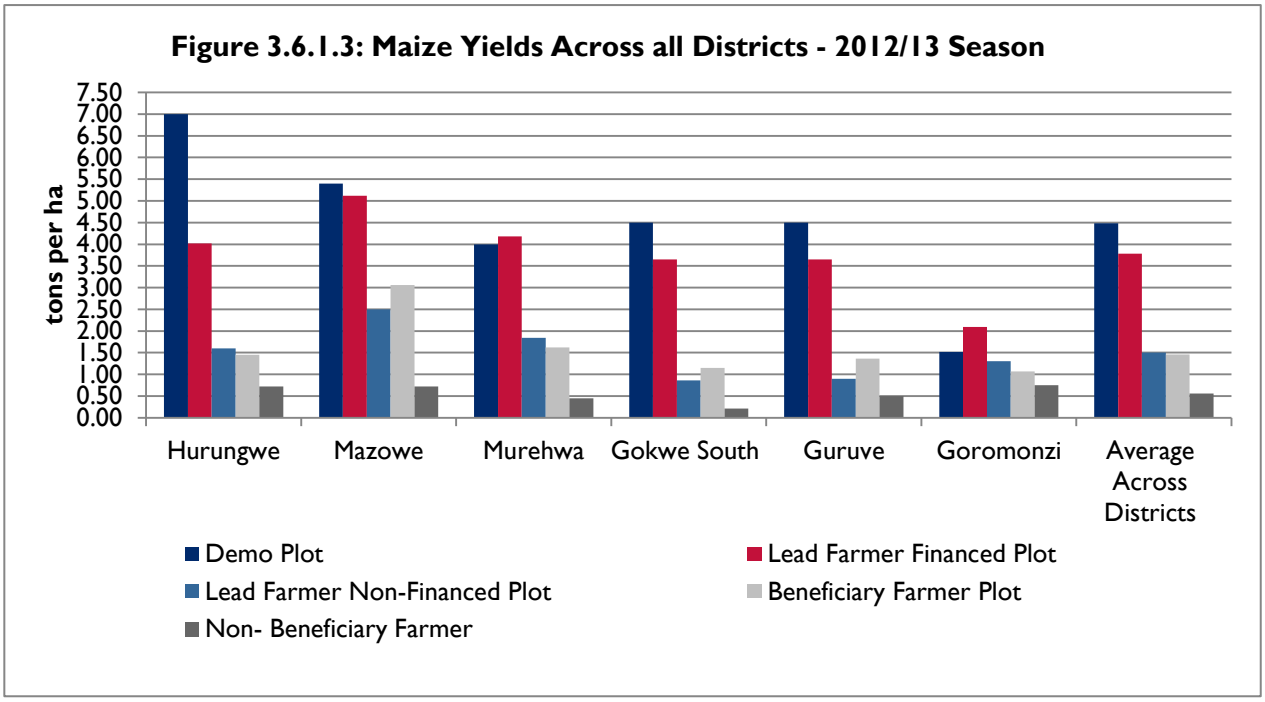
In the 2012/13 season, Zim-AIED trained 26,000 smallholder farmers in accessing credit, improving market linkages, and adopting new practices and technologies. Together with SAT, Zim-AIED established 40 agribusiness hubs for demonstrations, extension services, and training to maximize production and commercialization of maize and other key crops. Target regions included Mashonaland Central (Guruve and Mazowe districts), Mashonaland East (Goromonzi and Murewa districts), Mashonaland West (Hurungwe district), Masvingo (Gutu district), and Midlands (Gokwe North and South districts). Zim-AIED farmers contracted by Northern Farming in Mazowe and Goromonzi also received technical assistance and training on maize production. In addition, specialized training in farming as a business supported smallholders' ability to generate surplus income.

The results and analysis of the 2012/2013 season for smallholder maize producers in dryland areas suggest the following conclusions:

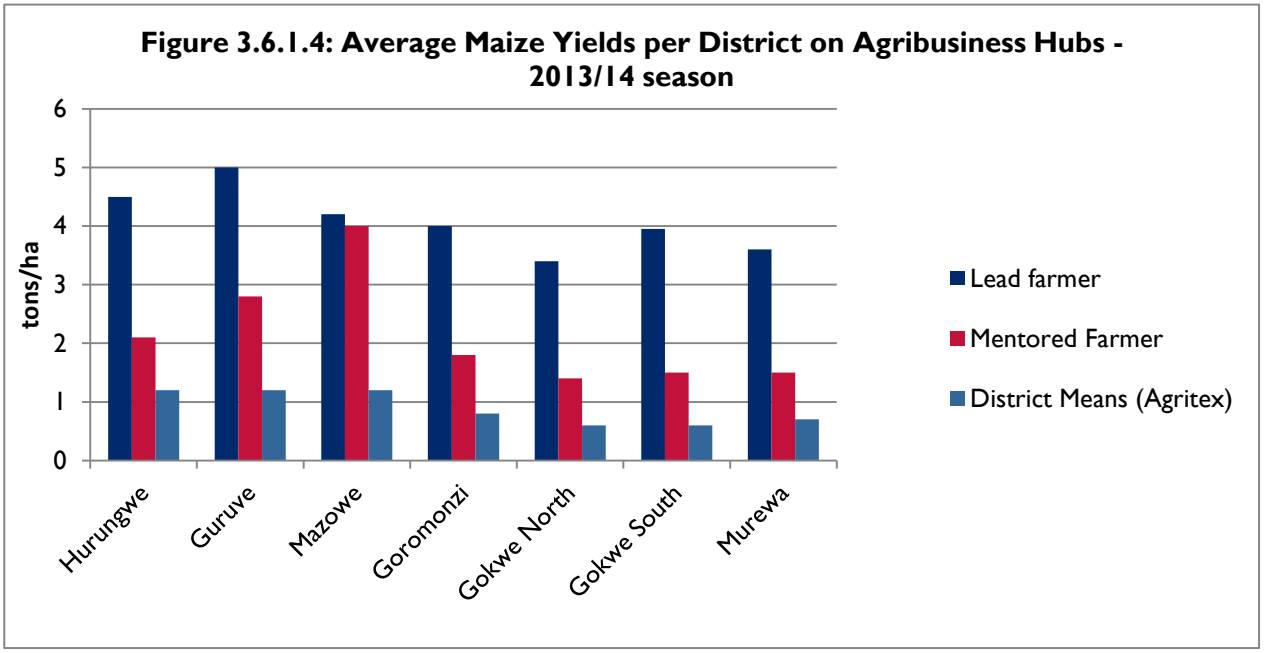
- Training, technical assistance, and adoption of GAPs and new technologies can **double yields**.
- Lead farmers, selected based on ability to repay loans, obtain high yields against other farmers, and prove literacy, can produce commercial-level yields with complementary inputs and technical assistance.
- Commercializing maize production among smallholder farmers entails accessing adequate inputs to establish maize enterprises that meet food and income requirements.

**Figure 3.6.1.2: Average Maize Yields per District on Agribusiness Hubs - 2012/13 Season**






During the 2013/14 season, Zim-AIED increased the number of lead farmers in each hub from four to 15 in all 36 SAT-managed hubs. Zim-AIED continued to promote maize production at 32 hubs where half of the farmers selected to grow maize demonstrations were also required to train at least five other farmers in their surrounding area. In addition to Zim-AIED lead farmers, the program continued to support 327 farmers contracted by Northern Farming to produce maize. IETC, who contracted some Zim-AIED farmers for soya bean production, also became an important maize buyer.




With the good rainfall of the 2013/14 season, most areas achieved strong yields, and Zim-AIED farmers performed better compared to district averages. The effort to cascade training and technical assistance through lead and mentored farmers also led to positive results, which proves that simply

adopting GAPs without inputs support can still raise yields and quality of production. However, access to quality inputs is vital to achieving dramatic increases in production. Zim-AIED maize farmers that received inputs support achieved yields 153 percent higher, on average, than beneficiaries with no inputs support (3.8 tons per hectare compared to 1.5 tons per hectare).

Across all districts, Zim-AIED-assisted farmers achieved at least twice the yields in maize as non-beneficiaries in the same districts.

In the first quarter of FY2015, 206 dryland farmers obtained loans from Quest and Untu for maize production on 0.5-1.0 hectares. The total value of the loans amounted to $73,023 with each farmer receiving $345-$356 per 0.5 hectares, depending on the district. Zim-AIED, together with Quest, regularly visited the recipient farmers in Murewa, Goromonzi, Guruve, and Hurungwe, and farmers were assured of continued cooperation with Quest after the exit of Zim-AIED. The farmers also reassured the finance institutions of full repayment before the end of the tenor period on June 30, 2015. Similar activities occurred between Untu and farmers in Gokwe South. By mid-FY2015, farmers' crops in Guruve and Hurungwe expected yields of up to five tons per hectare compared to other farmers anticipating 1.5 tons per hectare.

In Murewa and Goromonzi, farmers with loans from Quest and those that used input groups to procure their inputs had significantly better production and are expecting yields of up to three tons per hectare, compared to other farmers expecting only 0.5 tons per hectare. The farmers benefited from early planting thanks to timely receipt of inputs. Mid-season dry spells severely affected the maize crop in the two districts, especially the later-planted crops.

About 75 percent of the maize crop in Gutu in the 2014/15 season was a complete write off due to the prolonged dry spell. However, Zim-AIED farmers in the input procurement groups yielded up to two tons per hectare. Key GAPs that reduced farmers' risk of crop failure included early planting, mulching, basin planting, and minimum tillage.

The dryland crop in Honde Valley yielded a low average of 0.6 tons per hectare. Area farmers tend to rely on their banana crop, whose proceeds are now being used to purchase maize grain or meal.

In the 2014/15 season, the staples team focused on monitoring farmer groups that have been linked to microfinance institutions (Virl, Quest, and Untu) and input suppliers. The team also continued to work with 10 input procurement groups as detailed in Table 3.6.1.2. The groups have a total membership of 365 farmers and focus primarily on procuring maize inputs for their members utilizing savings from crop proceeds and other income sources. Procurement groups are also able to acquire discounts on input through bulk purchasing.

**Table 3.6.1.2: Input Procurement Groups Supported by Zim-AIED in Q2, FY2015**

| District | Group Name | Ward | No. of Farmers | Value of Inputs ($) |
|---|---|---|---|---|
| Guruve | Nzarayapera | 7 | 18 | 4,443 |
| | Tasangana Varimi | 11 | 23 | 2,192 |
| | Batanai | 12 | 30 | 12,150 |
| | Nyanhunzi | 9 | 35 | 6,291 |
| Goromonzi | Takunda | 12 | 47 | 4,807 |
| Murewa | Ward 15 | 15 | 33 | 2,970 |
| | Ward 25 | 25 | 46 | 11,275 |
| Hurungwe | Tashinga | 12A | 51 | 8,744 |
| | Nyamutora | 12B | 15 | 738 |
| Gutu | Ward 25 | 25 | 67 | 1,000 |
| **Total** | | | **365** | **54,610** |

The groups are expected to continue working with several Zim-AIED introduced input suppliers, including Windmill, Nico-Orgo, Seedco, Pioneer, Klein Karoo, and others. In addition, AGRITEX will support collaboration with MFIs. This arrangement presents a viable exit strategy for Zim-AIED.

**Maize (Irrigated).** Zim-AIED promoted maize production on irrigation schemes in Manicaland and Matabeleland during FY2013 and FY2014.

On the Mutema and Chibuwe irrigation schemes (Chipinge district) in the 2013/14 season, maize was the major summer crop covering 1,116 hectares and grown by 1,521 farmers on the irrigation schemes. An estimated 2,000 tons were produced in the season with a production value of $720,000. Farmers who adopted GAPs promoted by Zim-AIED achieved yields of up to six tons per hectare, while those who did not achieved less than 1 ton per hectare.

Given the drought during the 2014/15 season, prices varied widely between $360 and $480 per ton. Formal trading of maize has effectively ended in the region as formal buyers cannot match the prices offered by villagers from the neighboring drylands.

In October 2014, 25 farmers from Musikavanhu B irrigation schemes received loans from Virl Microfinance to grow 0.4 hectares of maize using a new seed variety (SC 727) following Zim-AIED's recommendations. This large-scale demonstration of direct lending to maize farmers on irrigation schemes was expected to attain up to six tons per hectare and a minimum price of $300 per ton. However, farmers actually achieved yields between 6.5 to 9.5 tons per hectare, and most maize was sold as grain at prices between $360 and $480 per ton. Farmers also sold 30 percent of their crop as green mealies and realized even higher incomes. On average, farmers in the project realized sales of at least $2,520 with a gross margin of $1,920 per hectare. Loan repayments were 100 percent.

In Matabeleland, yields of up to six tons per hectare in the 2013/14 season helped to significantly reduce the grain deficit of the region. This achievement, however, also translated into lower prices in some irrigation sites ($0.33-0.39 per kilogram) compared to the 2012/13 season ($0.55 per kilogram).

In Chipinge, maize became as important as sugar beans for income generation. With appropriate high-yielding maize varieties, correct quantities of fertilizers, and good timing (harvesting in January/February), farmers realized significant incomes from this crop. The major buyer was Peak Trading who offered farm-gate prices of up to $0.30 per kilogram.

Farmers are now producing surplus maize grain, which will improve food security in a traditionally deficit region. Expected total production from Zim-AIED production areas in FY2015 is estimated at 191,000 tons valued at $45.8 million, with expected sales through formal and informal channels of $2.3 million.

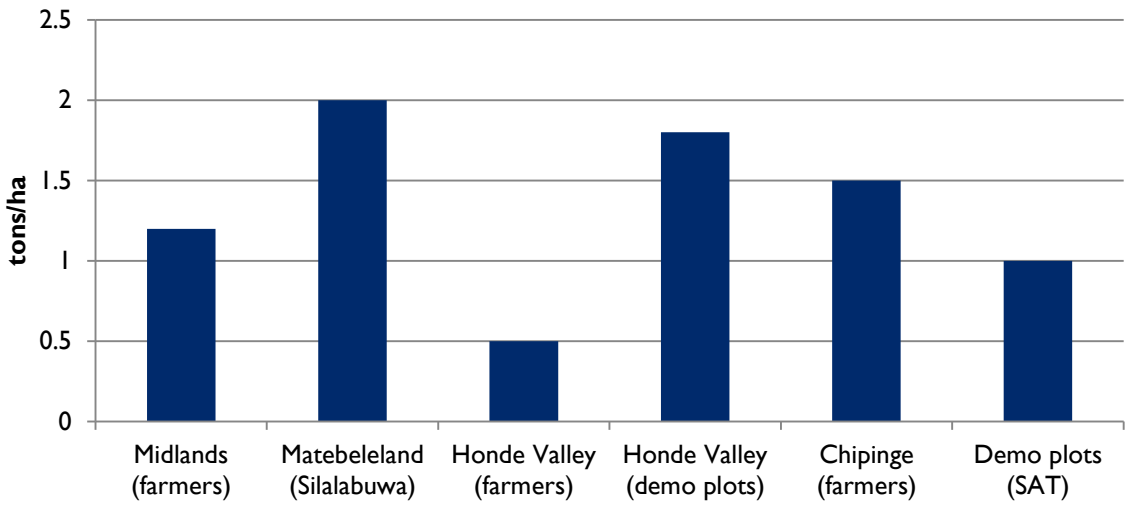
**Table 3.6.1.3: Summary of Maize Production in Zim-AIED Areas since Program Inception**

| Year | # of farmers | # of hectares | Total production (tons) | Yield (tons/ha) | Total cost ($) | Total Cost ($/ha) | Value of production ($) | Value of production ($/ha) | Total sales ($) | Total sales ($/ha) | Gross margin ($/ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2012 | - | 51,760 | 76,214 | 1.00 | $11,218,100 | $217 | $22,864,100 | $442 | $8,230,000 | $159,001 | $225 |
| 2013 | 86,818 | 68,057 | 110,104 | 1.62 | $25,418,574 | $293 | $34,422,022 | $506 | $25,086,224 | $368.61 | $213 |
| 2014 | 95,605 | 105,325 | 240,062 | 2.28 | $33,222,425 | $315 | $78,828,150 | $748 | $35,964,160 | $341.46 | $433 |
| 2015 | 107,135 | 95,527 | 191,054 | 2.00 | $30,109,155 | $315 | $45,852,960 | $480 | $2,197,082 | $23.00 | $165 |

**Sugar beans.** Throughout the life of the program, Zim-AIED promoted sugar bean production in both dryland and irrigated areas. The program started with structured training in the 2011/12 season in conjunction with implementing partner, SAT, and technical assistance and training provided by Zim-AIED staff. By the 2012/13 season, technical assistance expanded to sugar bean

growers on irrigation schemes in Manicaland, Matabeleland South, and Midlands as well as in the agribusiness hub dryland sites of Hurungwe, Mazowe, Guruve, and Goromonzi. Technical assistance to sugar bean growers continued in the 2013/14 season on the irrigation schemes and dryland areas assisted in FY2013.

**Figure 3.6.1.5: Sugar Beans Yields Across all Districts - 2013/14 Season**




Zim-AIED partnered with Matanuska to contract 680 farmers at Mutema and Chibuwe irrigation schemes in southern Manicaland to grow 205.8 hectares of sugar beans; in Mutema, 274 farmers grew 62.5 hectares of sugar bean seed by Pannar Seeds. All non-seed growing farmers supplied their own chemicals and seed and received fertilizer on loan from Zim-AIED through Matanuska worth $45,192. The two schemes with Mutema farmers generated 1,558 tons valued at $397,100, while Chibuwe farmers achieved $1.47 million in sales. Sugar bean production rose by more than 72 percent compared to 902 tons produced on the two schemes in the 2011/12 season.

High yields were due to farmers receiving training and technical assistance on GAPs, seed selection, and herbicide application. Average yields for contracted farmers were 1.8 tons per hectare compared to 1.0 tons for other farmers, and contracted farmers achieved average gross incomes of $1,564 compared to $890 for other farmers.

Farmers on the Chibuwe irrigation scheme in FY2014 did not enter any contract farming arrangements, thus reducing slightly the total production. However, sugar bean remains one of the most important crops for irrigation schemes in Chipinge district, with sales of $1,655,700 realized in FY2014 for just Chibuwe and Mutema irrigation schemes. In Manicaland, the last sugar bean sales were in October 2014 from farmers on the Chibuwe irrigation scheme, aggregating an additional 60 tons worth $90,000 to Chibuwe's cumulative sales for the season.

By adopting GAPs from Zim-AIED, such as use of certified seed, seed treatment with Apron star, and appropriate pest and disease control, some farmers achieved yields of up to 3.2 tons per hectare. However, other areas affected by frost (Hama, Insukamini and Madigane schemes) or irrigation pump breakdowns (Exchange irrigation scheme) saw yields as low as 600 kilograms per hectare and crop losses of 20-40 percent.

At program close, it was evident that the crop would remain important for the Zim-AIED farmers. Some farmers in Guruve who participated in this program were able to access loans from Untu for the production of the 2015 crop. In Chibuwe and Mutema, 1,200 hectares were planted in 2015, with financing from Virl and Agribank for selected farmers while others were able to apply the

required inputs using their own resources. A good sugar bean season is expected in Chibuwe and Mutema as reliable farmers have access to fertilizer in addition to their wealth of technical expertise imparted over three seasons by Zim-AIED. Farmers are optimistic that, despite the recurring drought conditions in 2015, prices will be better than the $1.00 per kilogram received in FY2014.

At the end of March 2015, 5,087 hectares were under sugar beans in all Zim-AIED program areas with an expected production of 6,107 tons.

**Table 3.6.1.4: Summary of Sugar Bean Production in Zim-AIED Areas Since Program Inception**

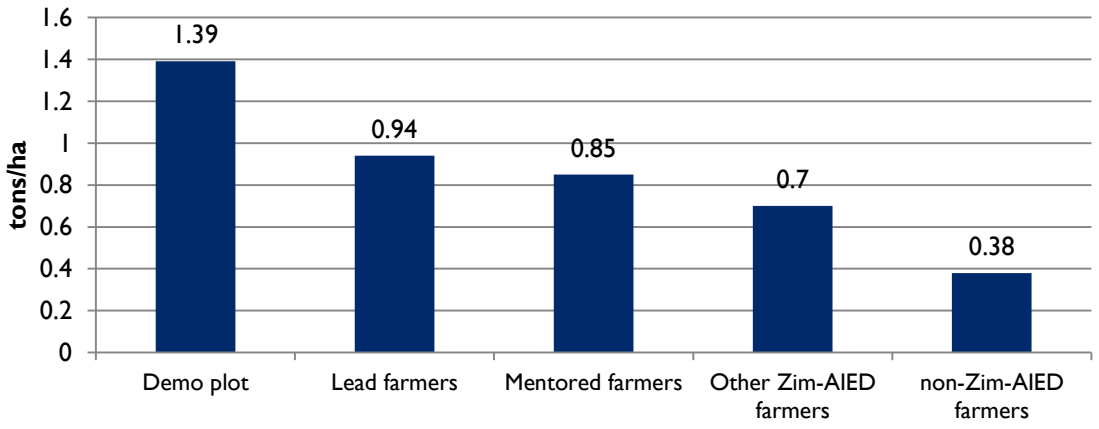
| Yr | # of farmer | # of hectare | Total production (tons) | Yield (tons/ha) | Total cost ($) | Total Cost ($/ha) | Value of production ($) | Value of production ($/ha) | Total sales ($) | Total sales ($/ha) | Gross margin ($/ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2013 | 25,076 | 2,312 | 2,653 | 1.15 | $791,169 | $342 | $3,210,372 | $1,389 | $2,934,162 | $1,269 | $1,047 |
| 2014 | 33,596 | 12,684 | 14,666 | 1.16 | $6,357,818 | $501 | $16,181,325 | $1,276 | $11,301,578 | $891 | $775 |
| 2015 | 12,642 | 5,089 | 6,107 | 1.20 | $2,550,912 | $501 | $6,691,665 | $1,315 | $1,607,842 | $316 | $814 |

Sugar bean production dropped significantly in 2015, both in terms of number of farmers and area under production. This was due, in part, to the previous year's price drop, from $1.21 per kilogram in 2013 to $1.10 per kilogram in 2014. Consequently, gross margins dropped by 26 percent from $1,047 per hectare to $775 per hectare during the same period. Fearful that this trend would continue, many farmers chose to opt out of sugar bean production in 2015.

**Groundnuts.** In FY2012, Zim-AIED promoted groundnut production in the dryland agribusiness hubs of Murewa, (Mashonaland East), Gokwe (Midlands), and Gutu (Masvingo). Lead farmers, as for the maize crop, received inputs to grow on 0.5 hectares. Zim-AIED also provided training and technical assistance to lead and other farmers, especially emphasizing the use of Gypsum and weed control among other GAPs. However, widespread use of poor quality non-certified seed continues to constrain yields, even on Zim-AIED demonstration plots that utilize this seed. Despite intensive technical assistance, yields were lower than those from the average Zim-AIED-supported farmers. Farmers in Murewa or Gokwe who used their own retained seed achieved better yields, although this result was also due to the special training and technical assistance provided by Zim-AIED.

During FY2014, training and technical assistance, as for other crops, increased yields compared to unassisted farmers. However, the unavailability of proper seed still limited increased production. To to address this constraint during the 2013/14 season, lead farmers in Murewa and Gokwe South were advised to grow the higher yielding variety, Falcon, available from some growers in Murewa.

**Figure 3.6.1.6: Groundnut Yields in all Districts - 2013/14 Season**



The average price was $0.69 per kilogram for unshelled groundnuts compared to $0.49 per kilogram in the FY2013 season. Some buyers offered $1.00 per kilogram for shelled groundnuts, but shelling machines are limited. Despite sales of this crop, most farmers prefer to process it into peanut butter.

In 2015 in Mutema and Chibuwe, groundnuts were produced under irrigation for the fresh market. In total, 135 hectares of the crop were grown, producing about 675 tons of fresh groundnuts (33,750 buckets) sold in the local market and outside the region.

**Table 3.6.1.5: Summary of Groundnut Production in Zim-AIED Areas Since Program Inception**

| Year | # of farmers | # of hectares | Total production (tons) | Yield (tons/ha) | Total cost ($) | Total Cost ($/ha) | Value of production ($) | Value of production ($/ha) | Total sales ($) | Total sales ($/ha) | Gross margin ($/ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2013 | 18,963 | 2,327 | 2,831 | 1.22 | $322,931 | $139 | $1,393,180 | $599 | $1,013,842 | $435.69 | $460 |
| 2014 | 19,883 | 7,819 | 8,326 | 1.06 | $946,527 | $121 | $5,723,936 | $732 | $2,398,976 | $306.81 | $611 |
| 2015 | 26,681 | 10,590 | 13,132 | 1.24 | $1,283,508 | $121 | $14,084,805 | $1,330 | $124,222 | $12 | $1,209 |

**Sweet potatoes.** Sweet potato is crucial for many rural households living at subsistence levels but has rarely been grown as a commercial crop in the past. In FY2011, Zim-AIED visited various sweet potato interventions and provided technical assistance in disease control and varietal selection. Yields were generally less than 5 tons per hectare, 30 percent below the potential level with GAPs. Since market feedback was excellent, Zim-AIED initiated a subcontract with CARE International to expand sweet potato production in community gardens in Midlands and Matabeleland South.

In FY2012, 205 smallholder farmers partnered with Zim-AIED in Gweru and Gutu to develop a small-scale sweet potato industry. During this pilot stage, the farmers earned net average incomes of only $37 per household, but for many this attempt was their first commercial venture. In preparation for the next season, the farmers established 10 nurseries stocked with virus-free vines that were multiplied to supply 2,000 sweet potato growers in the two districts with planting material for 0.2 hectares per household.

During FY2013, 3,850 farmers grew sweet potatoes in Gweru, Midlands and 356 farmers in Gutu, Masvingo; in Gutu, 115 hectares were planted while in Midlands 338 hectares were established. Twenty-five demonstration sites in Gweru and Gutu showcased GAPs in sweet potatoes and promoted improved virus-free planting material, ridging, fertilizer, and carbaryl to control weevils.

Average yields for Zim-AIED-assisted farmers were around 4.25 tons per hectare compared to 2.75 tons per hectare for non-beneficiaries (Figure 3.6.1.7). Yield assessment on demonstration plots hosted by farmers in Gweru showed a yield range of 7.8-10.2 tons per hectare while the highest yield was recorded in Gutu at 15 tons per hectare mainly due to supplementary irrigation, reduced weevil damage, and the application of Compound S fertilizer.

In FY2014, Zim-AIED continued to train and assist sweet potato farmers in Gutu, Murewa, and Madigane wetlands in Midlands. A general increase in production of this crop during the 2013/14 season resulted in lower prices, even on traditional roadside markets in Gutu where prices dropped to $5 per 20-liter tin ($0.25 per kg), down from $10 in previous years. However, Gutu farmers sold more than 3 tons of a special variety to SimFresh, which wanted the product for export. The company, together with AGRITEX, will continue to buy from Zim-AIED farmers if the product meets their quality requirements.

Further efforts should include a comprehensive study of the market, especially the export sector, and promote virus-free vines, not older than the third generation.

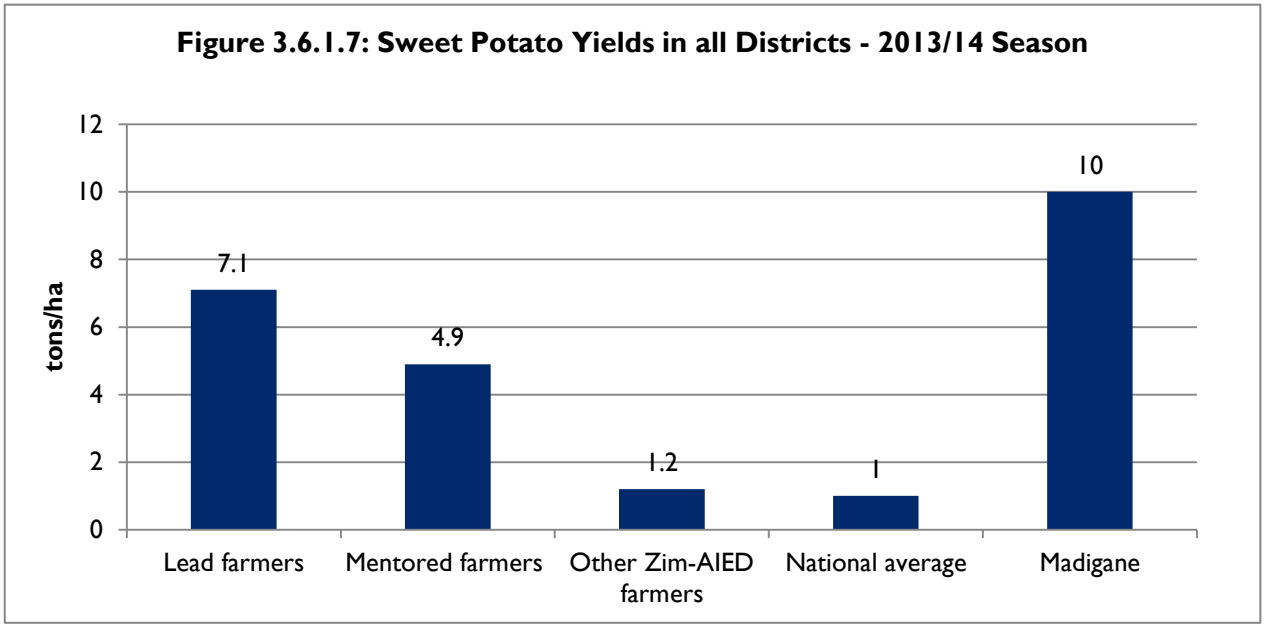



**Table 3.6.1.6: Summary of Sweet Potato Production in Zim-AIED Areas Since Program Inception***

| Year | # of farmers | # of hectares | Total production (tons) | Yield (tons/ha) | Total cost ($) | Total Cost ($/ha) | Value of production ($) | Value of production ($/ha) | Total sales ($) | Total sales ($/ha) | Gross margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2013 | 21,558 | 655 | 3,091 | 4.72 | $138,302 | $211 | $1,046,541 | $1,598 | $1,029,013 | $1,571 | $1,387 |
| 2014 | 6,206 | 3,711 | 20,748 | 5.59 | $1,371,274 | $370 | $6,778,201 | $1,827 | $6,046,646 | $1,629 | $1,457 |
| 2015 | 3,313 | 2,189 | 21,212 | 9.69 | $1,025,820 | $469 | $5,134,800 | $2,346 | $4,534,945 | $2,072 | $1,877 |

**The figures in this table include smallholder farmers who produce sweet potatoes primarily for household consumption, not for sale, while the figures in the paragraphs above reflect only commercial production.*

**Cowpeas.** Zim-AIED activities in cowpea production in the 2011/12 season focused on structured training provided to farmers in cooperation with SAT and other commercial companies on crop budget calculations, safe use of chemicals, and marketing. Production data was collected from farmers and compared with market demand and price information for select target crops and effective interventions for the 2011/12 season.

In the 2012/13 season, training and extension was provided mainly through the 80 demonstration plots established by SAT in all eight provinces of Zimbabwe. The crop continued to show great potential as a food and cash crop. Zim-AIED continued to promote the crop in the 2013/14 season on four agribusiness hubs in Gutu district. Cowpea is one such crop that can be commercialized in marginal areas such as Gutu, as it is drought tolerant, has a short season, and requires low inputs.

After successfully growing cowpeas with eight lead farmers in Gutu during the 2012/13 season, the number of farmers increased to 49 during the 2013/14 season. Adoption of GAPs and inputs support resulted in increased productivity. Even those farmers that applied improved practices only, without inputs, achieved yields higher than the national average (0.65 tons per hectare versus 0.48 tons per hectare). However, challenges arose in marketing the crop. Buyers such as Sidella offered prices too low for farmers to break even at $0.33 per kilogram. However, farmers eventually found other buyers such as Zaka Seeds, through GRM, and sell off their entire crop at $0.50 per kilogram.

Despite this constraint, many farmers in Gutu continued in FY2015 to grow the crop for food security reasons while others were assured of a market through off-take agreements from Zaka Seeds. Farmers used seed retained from the previous season's crop. However, the current area

under cowpea production is low compared to FY2014, averaging about 0.3 hectares per farmer. Yields of around 0.39 tons per hectare are expected as the district was severely affected by drought.

**Table 3.6.1.7: Summary of Cowpea Production in Zim-AIED Areas Since Program Inception**

| Year | # of farmers | # of hectares | Total production (tons) | Yield (tons/ha) | Total cost ($) | Total Cost ($/ha) | Value of production ($) | Value of production ($/ha) | Total sales ($) | Total sales ($/ha) | Gross margin ($/ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2013 | 4,183 | 227 | 235 | 1.04 | $23,163 | $102 | $113,235 | $499 | $93,516 | $411 | $397 |
| 2014 | 1,951 | 759 | 663 | 0.87 | $150,315 | $198 | $331,623 | $437 | $249,259 | $328 | $239 |
| 2015 | 1,923 | 486 | 191 | 0.39 | $96,175 | $198 | $101,229 | $208 | $23,150 | $48 | $10 |

**Soy beans.** Zim-AIED promoted soybean in partnership with IETC who contracted smallholders for soybean production in Guruve, Goromonzi, and Hurungwe districts. During the 2012/13 season, 273 soybean farmers received extension and training in Hurungwe district, and this number expanded to 327 farmers in Guruve, Goromonzi, and Hurungwe districts in the 2013/14 season. Technical assistance and training provided by Zim-AIED using the agribusiness hub model resulted in yield increases for the lead and mentored farmers compared to those who did not receive such assistance, as shown in the table below.

**Table 3.6.1.8: Soy Bean Production Yields**

| Crop | Main demos | | Lead farmers | | Mentored farmers | | Other beneficiaries | | Baseline Results |
|---|---|---|---|---|---|---|---|---|---|
| | Yield (t/ha) | % increase in yield | Yield (t/ha) | % increase in yield | Yield (t/ha) | % increase in yield | Yield (t/ha) | % increase in yield | Yield (t/ha) |
| Soy beans | 1.51 | 116% | 1.28 | 83% | 1.00 | 42% | 0.92 | 31% | 0.7 |

**Table potatoes.** Zim-AIED promoted the production of table potatoes in some irrigation schemes. The program linked 12 farmers at Chinyika irrigation scheme in Goromonzi to Virl Financial Services for input loans, and provided technical assistance and training on GAPs. The crop, established in August 2014, was harvested in November 2014. Zim-AIED continued to visit the farmers to give them advice, especially on the use of pesticides, and also to encourage loan repayment. The repayment rate was 83.3 percent of the $5,880 loan advanced at the end of March 2015. Average yields of 15 tons per hectare were obtained. Potato bacterial wilt reduced yields.

The crop was also promoted in Matabeleland where farmers achieved yields of up to 35 tons per hectare. Production increased at some sites in Matabeleland during FY2015 compared to the previous season. At Makwe irrigation scheme in Gwanda the production area increased from 4 hectares in FY2014 to the current 6.8 hectares because of increased demand. The program provided training and technical assistance on crop production and effective marketing.

**Table 3.6.1.9: Summary of Soy Bean and Table Potato Production in Zim-AIED Areas Since Program Inception**

| Year | Area | # of farmers | # of hectares | Average Yield (tons/ha) | Total production (tons) | Total volume of sales (tons) | Total value of sales ($) | Avg. Price ($) | Gross Margin ($/ha) |
|---|---|---|---|---|---|---|---|---|---|
| FY2013 | Soy Beans | 8,035 | 159 | 1.02 | 162,613 | 130,728 | 65,364 | 0.50 | 415 |
| | Potatoes | 120 | 60 | 15.00 | 900,000 | 900,000 | 603,000 | 0.67 | 3,135 |
| FY2014 | Soy Beans | 5,701 | 4,087 | 1.12 | 4,566,396 | 3,520,945 | 1,637,306 | 0.47 | 367 |
| | Potatoes | 25 | 4 | 14.24 | 53,400 | 48,060 | 36,882 | 0.77 | 6,568 |
| FY2015 | Soy Beans | 9,652 | 4,934 | 0.68 | 3,375,787 | 2,599,356 | 1,449,126 | 0.56 | 230 |
| | Potatoes | 107 | 11 | 24.69 | 276,560 | 248,904 | 164,277 | 0.66 | 9,981 |

### 3.6.2 Paprika and Chilies

Zim-AIED's interventions in paprika production and marketing focused on smallholder commercialization in the country's four main paprika production hubs. The program started by supporting more than 1,500 smallholder paprika farmers in FY2012 through technical and business training, and reached more than 5,000 farmers by the end of the program. Smallholder farmers now supply the bulk of Zimbabwean paprika for local and international markets.

Agronomic trainings and technical assistance emphasized seedling production and nursery management; transplanting techniques; optimal use of inputs; safe use of chemicals (pesticides, fungicides, and herbicides); pest and disease control (identification and integrated pest management); as well as hygienic postharvest handling practices and proper grading to ensure compliance with food hygiene and quality standards.

Paprika demonstration plots established at each production hub promoted GAPs and introduced new technologies such as herbicides. Zim-AIED directly financed all plots in the FY2012 to FY2014 seasons on a cost recovery basis. However, in FY2015 private sector buyers such as Zimspice began to fund demonstration plots directly in Headlands, Nyanga, and Hurungwe, realizing the positive effect they have on improving farmer productivity and quality. Private sector investments are critical to a successful exit strategy for Zim-AIED as they foster long-term, sustainable use of demonstration plots as training tools well beyond the life of the program.

**Table 3.6.2.1: Summary of Number of Paprika Farmers Trained, FY2012-FY2014**

| | FY2012 | | | FY2013 | | | FY2014 | | | Unique Trainees | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Female | Male | Total | Female | Male | Total | Female | Male | Total | Female | Male | Total |
| Nyanga | 760 | 563 | 1,323 | 614 | 513 | 1,127 | 870 | 690 | 1,560 | 985 | 769 | 1,754 |
| Chipinge | 215 | 243 | 458 | 113 | 107 | 220 | 56 | 60 | 116 | 314 | 329 | 643 |
| Headlands | 333 | 245 | 578 | 368 | 330 | 698 | 81 | 92 | 173 | 362 | 276 | 638 |
| Hurungwe | 533 | 579 | 1,112 | 853 | 971 | 1,824 | 371 | 667 | 1,038 | 1,020 | 1302 | 2,322 |
| Grand Total | 1,841 | 1,630 | 3,471 | 1,948 | 1,921 | 3,869 | 1,378 | 1,509 | 2,887 | 2,681 | 2676 | 5,357 |
| **% Female** | **53** | | | **50** | | | **48** | | | **50** | | |

Paprika production rose from an estimated 300 tons in FY2011 to more than 700 tons today and sales totaled more than $5.4 million (Table 3.6.2.2). The engagement of MFIs, such as Virl, in FY2014 and FY2015, also facilitated improved access to quality inputs, which was critical to achieving high yields. Increased adoption of GAPs also drove up the quality of produce as more than 90 percent of the crop sold as Grade A by FY2014. The hygienic drying technology introduced by Zim-AIED has now been adopted by the majority of farmers and many are now purchasing poly sheets for drying to ensure a high-quality product that complies with international quality standards for aflatoxin levels.

**Table 3.6.2.2: Summary of Paprika Production, FY2012-FY2015**

| FY | # of farmers | # of hectares | Average yield (t/ha) | Total production (tons) | Total sales (tons) | Average price ($/kg) | Total sales ($) |
|---|---|---|---|---|---|---|---|
| **2012** | 2652 | 808 | 1.22 | 987 | 987 | 1.29 | 1,272,700 |
| **2013** | 2744 | 690 | 1.07 | 737 | 737 | 1.23 | 910,855 |
| **2014** | 1548 | 584 | 1.66 | 970 | 970 | 1.87 | 1,812,085 |
| **2015*** | 1652 | 535 | 1.38 | 737 | 737 | 1.90 | 1,400,300 |

Before Zim-AIED, marketing arrangements between commercial buyers and smallholder farmers were largely uncoordinated, resulting in suboptimal profits to farmers. Zim-AIED entered into a

partnership fund agreement with two private sector companies, Capsicum Company and Zero One Africa, who contracted with smallholder farmers, thus creating formal marketing arrangements. The private sector companies would avail crop production inputs on loan and technical assistance to contracted growers who would in turn repay loans by selling exclusively back to partner companies. However, two years of this arrangement provided the program (as well as the Zimbabwean paprika market) an important lesson learned: contract farming within an open market system with multiple competing buyers is risky as farmers can easily undermine partnerships by side-selling to other buyers.

Beginning in FY2014, Zim-AIED discontinued the recoverable grants model through a single paprika buyer or trader and began creating new partnerships with all paprika processing and trading companies in the country. To buttress the industry-wide approach, Zim-AIED facilitated farmer-buyer interaction meetings and paprika market days/fairs in major production hubs.

The improved interaction resulted in greater competition among the six regular buyers, raising prices by 41 percent from an average of $1.29 per kilogram in FY2012 to $1.87 per kilogram in FY2014 and nearly doubling the average gross margin over the same period (Table 3.6.2.3).

**Table 3.6.2.3: Estimated Gross Margin for Paprika Farmers, FY2012-FY2014**

| Year | No. of farmers | Area (ha) | Yield (t/ha) | Price ($/ton) | Value of production ($/ha) | Cost of production ($/ha) | Gross margin ($/ha) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| FY2014 | 1,548 | 680 | 1.66 | 1,870 | 3,104 | 719 | 2,385 |
| FY2013 | 2,650 | 689 | 1.07 | 1,235 | 1,321 | 554 | 767 |
| FY2012 | 2,652 | 700 | 1.41 | 1,290 | 1,819 | 584 | 1,235 |

Zim-AIED also facilitated the development of a universal, industry-wide paprika grading standard, the Zimbabwe Paprika Grading Standard, in collaboration with the Standards Association of Zimbabwe, paprika buyers, farmers, food scientists, and researchers. The voluntary standard published in February 2015 is available to the public; each of the 10 paprika production groups in the four paprika hubs now has a copy. Standardization of grades is particularly important for paprika where the bulk of the crop is destined for the export market and prices offered to farmers are based strictly on product grades.

In FY2014 and FY2015, Zim-AIED facilitated credit linkages between smallholder paprika farmers and Virl Financial Services and Quest Financial Services. Following a successful direct lending pilot in FY2014, Zim-AIED worked with MFIs to scale up their operations in FY2015. A total of 233 paprika farmers in FY2015, up 39 percent from FY2014, received credit for inputs from Virl Microfinance and Quest Financial Services. The loan tenor varied from six to eight months at a 4 percent monthly interest rate. In Headlands, where the crop is produced under rainfed conditions, the number of farmers accessing paprika input loans increased by 150 percent. Cumulatively, 401 input loans worth $146,692 were disbursed to farmers in FY2014 and FY2015; 198 of which were issued to women farmers (Table 3.6.2.4).

**Table 3.6.2.4: Direct Lending to Paprika Farmer, FY2014-FY2015**

| Production area | FY2014 | | | | FY2015 | | | | Total ($) |
|---|---|---|---|---|---|---|---|---|---|
| | # loans | Female | Male | Value of loans ($) | # loans | Female | Male | Value of loans ($) | |
| Nyanga | 86 | 57 | 29 | 26,640 | 107 | 54 | 53 | 61,711 | 88,351 |
| Chiendambuya | 14 | 3 | 11 | 4,340 | 36 | 12 | 24 | 13,212 | 17,552 |
| Nedziwa | 42 | 27 | 15 | 13,860 | 48 | 23 | 25 | 12,909 | 26,769 |
| Chipinge | 26 | 9 | 17 | 5,100 | 27 | 8 | 19 | 4,495 | 9,595 |
| Hurungwe | - | - | - | - | 15 | 5 | 10 | 4,425 | 4,425 |
| Total | 168 | 96 | 72 | 49,940 | 233 | 102 | 131 | 96,752 | 146,692 |
| % Total | | 57% | 43% | | | 44% | 56% | | |

**Tabasco chili and ABE chili.** Starting in FY2013, Zim-AIED worked with private sector partner, Better Agriculture, to increase the volume of tabasco chili and ABE chili supplied by smallholder farmers to international companies such as McIlHenny and Nandos. Better Agriculture has an export agreement with the Chili Pepper Company, the African agents for McIlhenny and Co., to supply Tabasco chili mash. Better Agriculture established three processing plants to grind wet chilies into mash for export.

Better Agriculture also has an off-take agreement with Nando's in South Africa for the annual supply of 100 tons of dry ABE chilies to be manufactured into Nando's sauces. Smallholder farmers at three production sites were contracted by Better Agriculture to grow 0.2-0.4 hectares of ABE chilies per household. Farmers delivered their product at each site and were paid $0.70 per kilogram for wet chilies. Drying all the chilies before export to Nando's South Africa was done by Better Agriculture.

Following two years of Zim-AIED interventions, the area under tabasco chili production increased from 75 hectares in FY2013 to 88 hectares in FY2014 and 94 hectares in FY2015. On average, each dryland farmer grew 0.25 hectares of tabasco chili while irrigated farmers grew 0.2 hectares each. Similarly, the production area under ABE chilies increased from 16 hectares in FY2013 to 42 hectares in FY2014 and 50.4 hectares in FY2015. In total, the number of smallholder farmers growing Tabasco and ABE chilies increased from 376 in FY2013 to 597 in FY2015 (Table 3.6.2.5).

Productivity increased by more than 50 percent for both crops since Zim-AIED began its intervention in FY2013, mainly because of improved access to adequate inputs and high adoption of GAPs. Zim-AIED technicians provided regular trainings and technical assistance focusing on land preparation, seed beds and transplanting, timing of harvesting, proper grading of produce, and good recordkeeping. Zim-AIED's BDS team also trained chili farmers on group organizational and entrepreneurial skills.

**Table 3.6.2.5: Summary of Tabasco and ABE Chili Production Since Inception**

| FY | Crop | No, of farmers | No of hectares | Average yield (t/ha) | Total production (tons) | Total sales (tons) | Average price ($/kg) | Total sales ($) |
|---|---|---|---|---|---|---|---|---|
| 2013 | Tabasco chili | 331 | 75.2 | 3.4 | 257 | 257 | 0.50 | $151,630 |
| 2014 | | 404 | 88 | 7.4 | 647 | 647 | 0.50 | $335,954 |
| 2015* | | 386 | 94 | 7.0 | 662 | 662 | 0.50 | $331,000 |
| | | | | | | | | |
| 2013 | ABE chili | 45 | 16 | 4.5 | 72 | 72 | 0.80 | $59,930 |
| 2014 | | 239 | 42 | 8.6 | 363 | 363 | 0.70 | $252,570 |
| 2015* | | 211 | 50.5 | 7.5 | 378 | 378 | 0.70 | $264,600 |

*Projected *Source: Zim-AIED*

Cumulatively, chili farmers achieved total sales of $487,584 and $312,500 for Tabasco chili and ABE chili, respectively, during the FY2013 and FY2014 seasons. Farmers' incomes also increased as shown by the annual increases in gross margin per hectare (Table 3.6.2.6).

**Table 3.6.2.6: Estimated Gross Margin for Chili Farmers, FY2013-FY2015**

| FY | Crop and gross margin ($/ha) | |
|---|---|---|
| | Tabasco chili | ABE chili |
| 2013 | 1,303 | 2,945 |
| 2014 | 1,345 | 3,841 |
| 2015* | 2,710 | 4,440 |

After two seasons of Zim-AIED input support to contracted tabasco and ABE chili farmers, the ZMWF advanced a $207,000 loan through Better Agriculture in FY2015 to finance inputs for dryland and irrigated chili production in the 2014/15 agricultural season. This financing model has worked well particularly as Better Agriculture is the sole market for tabasco chili in the country and is the largest market for ABE chilies. This input financing arrangement is part of Zim-AIED's market-based exit strategy to ensure future sustainability of smallholder farmer chili production.

### 3.6.3 Horticulture: Bananas

**Honde Valley**. In FY2011and FY2012, Zim-AIED partnered with FAVCO and 602 farmers in Honde Valley, Manicaland to produce 100,000 tissue-cultured (TC) banana plants. FAVCO initially contracted 230 farmers in five areas of Honde in 2012 and another 370 farmers in 2013. Farmers were trained on banana marketing systems, adoption of good agricultural practices, increased irrigation development, and improved farmer organization. The introduction of improved TC planting material, supported by improved production practices and introduction of formal buyers has completely changed the Honde Valley banana business. Marketing interventions attracted various players from banana buyers to agrodealers and financial institutions. Buyers were attracted by improved banana quality, increased crop volume and increased farmer organization. FAVCO is still moving the highest quantities of bananas in Honde Valley and is doing so in the presence of mounting competition from both formal and informal buyers. Volume of purchases by FAVCO has been increasing in each successive year.

Farmers have also been applying the GAPs learned with the TC crop to their older plantations and have enhanced the production from these fields as well. Farmers have been applying fertilizer, irrigation, and mulch to enhance plant population densities to the recommended 2,000 plants per hectare. This has resulted in yield increases up to ten fold, from less than two tons per hectare to around 20 tons per hectare.

FAVCO is now heavily dependent on the TC crop as the contracted farmers have shown a degree of loyalty to the company as it developed them from near peasantry to commercial production. Unfortunately, payment delays of up to seven weeks at a time when other buyers are paying cash on the spot or within a week has weakened FAVCO's relationship with growers, resulting in reduced deliveries to them in recent months. However, a good number of the farmers now value the increased production capacity they are gaining through continued interaction with FAVCO. FAVCO's forecast purchases by the end of 2015 should be about 10 times that of baseline year 2011.

**Table 3.6.3.1: Quarterly Quantities and Values of Bananas Purchased by FAVCO**

| Year | Q1 | | Q2 | | Q3 | | Q4 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Qty (t) | Value ($) | Qty (t) | Value ($) | Qty (t) | Value ($) | Qty (t) | Value ($) | Qty (t) | Value ($) |
| FY2011 | 38 | 8,428 | 109 | 23,586 | 34 | 7,818 | 53 | 12,721 | **234** | **52,553** |
| FY2012 | 110 | 30,763 | 299 | 88,194 | 315 | 94,416 | 188 | 56,278 | **912** | **269,651** |
| FY2013 | 154 | 46,290 | 229 | 73,280 | 160 | 56,350 | 274 | 83,383 | **817** | **259,303** |
| FY2014 | 515 | 159,712 | 488 | 126,992 | 440 | 132,332 | 350 | 105,048 | **1793** | **524,084** |
| FY2015 | 785 | 235,633 | 536 | 144,894 | 174* | 48,580* | 750* | 210,000* | **2245** | **639,108** |
| *The period Q2-Q4 of 2015 was seriously affected by the influx of aggressive competition* | | | | | | | | | | |
| * Forecast quantities | | | | | | | | | | |

FAVCO purchases the higher grades of bananas at around $0.25 per kilogram, while the lower grades are purchased by informal traders at prices as low as $0.10 per kilogram, hence the discrepancy between FAVCO and the total for Honde Valley. Total estimated production almost tripled in 2012 compared to 2011 as a result of FAVCO's entry into the market, which introduced price and market stability, and thus farmers found it worthwhile to resuscitate plantations which had previously been abandoned. Since then, production has doubled annually. Total annual banana production in Honde Valley has increased from $180,000 to a $4 million business in four years as a result of Zim-AIED's intervention. FAVCO's entry caused prices to stabilize at a much higher level than before, which has promoted increased production from older plantations and establishment of new ones using good agricultural practice technologies from Zim-AIED which are now being proliferated through peer-to-peer training by beneficiary farmers. Non-beneficiary farmers have seen the financial benefits enjoyed by program participants and have learned and applied the

essential income enhancing technologies such as irrigation and use of fertilizers. This has caused a snowball effect that has improved production, incomes and livelihoods across Honde Valley.

**Table 3.6.3.2: Estimated total annual banana production from Honde Valley**

| Year | Qty (t) | Value ($) |
|---|---|---|
| FY2011 | 1,000 | 180,000 |
| FY2012 | 2,300 | 460,000 |
| FY2013 | 4,000 | 800,000 |
| FY2014 | 9,500 | 2,090,000 |
| FY2015 | 18,000 | 4,000,000 |

Informal traders (whose numbers keep increasing) are now being supplied by growers as they are generally more flexible on pricing and payment conditions than the large-scale buyers. In response to this development, FAVCO has started to reduce the gap between collection and payment to prevent farmers from refusing to supply them. Compared to 2013, FAVCO's volumes should have increased sharply during the period between July and December, coinciding with peak production of the TC crops. However, FAVCO failed to adjust its systems to accommodate the increased banana quantities. Changes that are expected to work in FAVCO's favor this year include:

- Availability of two tractors for transport.
- Changing from smaller trucks to 30-ton trucks.
- Reverting back to use of bulk bins instead of piling bananas in vehicles as this hastens offloading while preserving banana quality.
- Increased commitment from FAVCO management which is determined to return the company to its former position as Honde Valley's first choice for banana farmers.

With buyers fighting for their crop, farmers' negotiating power has increased and this has translated into increased incomes. The continual improvement in the banana marketing environment has motivated growers to expand their plantations while adopting GAPs that help them increase crop quality and yields. When the program started in 2011, all buyers combined were buying about 100 tons of bananas per month; that number is now 1,200 tons per month.

FAVCO's loan recoveries from the initial contracted groups of 230 farmers were $72,699 by the end of June 2015, which constitutes 89 percent repayment of the original loan of $81,805. Pressure is still being exerted on defaulters in an effort to reduce the outstanding balance which currently stands at $9,106 for the original groups.

The new groups, whose 372 members were contracted to grow the second 25 hectares of TC bananas in 2013, have repaid 72 percent of the $98,639 they borrowed. Repayments from the new group of farmers have been hampered by FAVCO's extended payment period, but collections will continue through program closeout.

After Zim-AIED introduced financial institutions in 2013 for direct lending to farmers (only those who had fully repaid their loans through FAVCO), an increased uptake of fertilizer use was observed, which contributed significantly to yield increases, particularly on old banana plantations. Farmers also used part of the loans to develop irrigation infrastructure. Of the total $96,426 disbursed through March 2015, $33,455 (35 percent) was used to develop irrigation infrastructure. While Virl and Agribank have been the major players in the area, Microplan, Zimbank, and CABS have also shown interest in financing Honde Valley banana farmers.

**Mutema and Chibuwe**. Zim-AIED partnered with Matanuska and 441 farmers in Chibuwe and Mutema irrigation schemes to plant 100 hectares of TC bananas in an area that had never produced bananas before. Seven demonstration plots were initially planted to allay farmers' fears and decrease their skepticism that bananas could thrive in the harsh climate prevailing at these irrigation schemes.

Estimates indicate that volumes and total revenue will decline slightly as compared to the previous year as prices have gone down due to oversupply, as well as water availability challenges caused by the drought experienced in the late summer of 2015. Irrigation challenges caused by changes in the course of the Save River from which irrigation water is drawn have affected Chibuwe C block, resulting in a decline in both plant productivity and quality. However, overall volumes from the plantation continue to rise as it is now at optimum performance with all sections mature. Total production by the end of this year is estimated to be around 5,500 tons.

Production is now fully matured and more evenly distributed throughout the year, no longer experiencing sharp peaks during certain months. This is advantageous for marketing purposes as supply to the market remains consistent, reducing production gluts and ensuring regular cash flow to farmers.

**Table 3.6.3.3: Banana Purchases by Matanuska from Mutema and Chibuwe**

| Year | Q1 | | Q2 | | Q3 | | Q4 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (t) | Value ($) | (t) | Value ($) | (t) | Value ($) | (t) | Value ($) | (t) | Value ($) |
| FY2012/13 | | | 43 | 14,332 | 1,324 | 414,785 | 710 | 210,255 | 2,077 | 639,372 |
| FY2013/14 | 586 | 146,307 | 951 | 265,474 | 2,085 | 548,477 | 1,397 | 349,736 | 5,020 | 1,309,995 |
| FY2014/15 | 938 | 227,599 | 1,258 | 283,366 | 1,950 | 450,000 | 1,300 | 300,000 | 5,446 | 1,260,965 |
| % Increase | 38 | 36 | 24 | 6 | -6 | -18 | -7 | -14 | 8 | -4 |

**Table 3.6.3.4: Banana Yields from Mutema and Chibuwe Plantations for 2014/15**

| Block | Average Yield |
|---|---|
| Mutema | 73,613 |
| Musikavanhu A5 | 74,308 |
| Chibuwe C1 | 51,083 |
| Chibuwe C2 | 53,075 |
| Chibuwe D | 79,342 |
| **Overall average** | **66,284** |

The plantations continue to consistently attain very high yields, averaging 66 tons per hectare, which is significantly higher than the commercial average of 40 tons per hectare. Farmers have recently received another loan for input financing from CABS after paying back the previous loan. A new contract was adopted by both Matanuska and farmers and is now in force.

**Rusitu Valley.** Zim-AIED's activities in Rusitu Valley focused on improving productivity and market linkages for more than 1,500 banana farmers to input suppliers and reliable buyers. Zim-AIED set up five TC demonstration plots across the valley to showcase good banana production practices. Herbicide use was one of the technologies introduced to farmers as weed control becomes problematic during the rainy season. Through herbicide application, the cost of weed control is reduced by 90 percent per hectare.

Farmers were trained and shown the importance of correct plant spacing and its direct link to productivity. Through Zim-AIED, more than 50 hectares of banana plantations have been established around the demonstration plots at the recommended plant population of 2,000 plants per hectare. In addition, an increased number of farmers are now using fertilizers on their banana plantations after observing the impact of fertilizer on yields in the demonstration plots. Some farmers have also adopted the technique of sleeving their banana bunches to maintain quality and this has contributed to the increase in quality of the bananas coming out of Rusitu Valley. Because of the continuous humid conditions prevailing in summer, leaf diseases present a major threat to banana production in the valley. Zim-AIED trained farmers to put into practice leaf cutting techniques to control these diseases, which have been widely adopted by many farmers.

AGRITEX personnel are using the demonstration plots for field days and regular trainings, thus ensuring the demonstrations continue to be focal points for technology dissemination where farmers go to learn well beyond the life of Zim-AIED. These demonstrations will also continue to be a source of TC-based planting material for new plantations.

Marketing has remained the single greatest challenge for banana farmers in Rusitu Valley. Zim-AIED developed market linkages with major commercial players in the banana industry such as Sunspun and FAVCO and new buyers coming into the valley, which has seen the beginning of trade formalization in an area dominated by informal and sometimes unscrupulous buyers. Twelve farmer groups received training on marketing, group organization, quality, and general logistics to enable them to better supply the different markets. A new approach was implemented to develop service providers who play the role of consolidating and facilitating sales between selected buyers and farmer groups on a pre-negotiated commission. This arrangement has had some success as it operates in full transparency between buyer and farmers.

Expansion of banana plantations as a result of Zim-AIED's interventions is estimated to be around 25 percent annually. The program estimates that banana farmers in Rusitu Valley produced and sold approximately 5,000 tons of bananas in the past year, earning an estimated $850,000.

**Table 3.6.3.5: Summary of Banana Activities, 2012-2015**

| Fiscal Year | Location | Number of farmers | Number of hectares | Average Yield (tons/hectare) | Total production (tons) | Total volume of sales (tons) | Total value of sales ($) | Average Price ($/ton) | Gross Margin ($/hectare) |
|---|---|---|---|---|---|---|---|---|---|
| **2012** | Honde Valley | 565 | 980 | 5.66 | 5,547 | 5,547 | 1,331,232 | 240 | 321 |
| | Chipinge | 441 | 100 | 10.31 | 1,031 | 1,031 | 247,440 | 240 | 1,521 |
| | **Total** | **1,006** | **1,080** | **6.09** | **6,578** | | **1,578,672** | | |
| **2013** | Honde Valley | 2,300 | 1,325 | 7.94 | 10,521 | 10,521 | 3,247,768 | 309 | 2,063 |
| | Rusitu | 699 | 447 | 13.12 | 5,863 | 5,863 | 1,231,199 | 210 | 910 |
| | Chipinge | 441 | 100 | 33.58 | 3,358 | 3,358 | 1,047,790 | 312 | 2,928 |
| | **Total** | **3,440** | **1,872** | **10.55** | **19,742** | | **5,526,757** | | |
| **2014** | Honde Valley | 2,300 | 1,325 | 13.78 | 18,259 | 17,541 | 4,890,431 | 279 | 3,394 |
| | Rusitu | 1,152 | 550 | 53.02 | 29,158 | 24,699 | 6,642,963 | 269 | 5,270 |
| | Chipinge | 441 | 100 | 68.48 | 6,848 | 5,739 | 1,538,626 | 268 | 13,954 |
| | **Total** | **3,893** | **1,975** | **27.48** | **54,265** | | **13,072,020** | | |
| **2015** | Honde Valley | 2,300 | 1,325 | 14.56 | 19,292 | 17,575 | 4,850,700 | 276 | 3,337 |
| | Rusitu | 1,152 | 550 | 58.35 | 32,093 | 27,058 | 6,002,406 | 222 | 5,243 |
| | Chipinge | 441 | 100 | 57.80 | 5,780 | 5,671 | 1,327,014 | 234 | 11,500 |
| | **Total** | **3,893** | **1,975** | **28.94** | **57,165** | | **12,180,120** | | |

### *3.6.4 Export Horticulture*

During the life of the program, Zim-AIED partnered with Selby Fresh, Lonrho Agribusiness, and Vegieflora to link smallholder horticulture farmers to the export market.

In FY2012, Zim-AIED noticed that the few remaining large, commercial exporters such as Lonrho Agriculture, Better Agriculture, Selby Fresh, and Vegieflora had re-established strong market links with South Africa, the UK, and Europe but were experiencing an upsurge in demand for export vegetable products. For Zimbabwe to compete on the world market with sufficient volumes, these

exporters needed to explore new supply channels. However, they were reluctant to engage smallholder farmers due to the high risks associated with maximum residue limits and use of unauthorized pesticides. Most of them were not prepared to risk the punitive fines imposed by buyers or being black listed for non-compliance.

To alleviate exporters' concerns about dealing with smallholder farmers, Zim-AIED provided strong technical support and training to selected farmers in Mashonaland East to address major issues such as traceability, recordkeeping, safe use of pesticides, good agricultural practices, and harvesting and postharvest techniques. All training events were conducted on demonstration plots that were established on a cost recovery basis for the relevant crops such as mange tout, sugar snap peas, cherry peppers, and green beans. The demonstration plots were located close to the smallholder farmers in several irrigation schemes in Mutoko and Murewa wetlands.

However, the exporters battled to make headway in the difficult economic climate in which they operated with both small- and large-scale operators facing major liquidity challenges and struggling to pay the farmers on time. As a result, there were varying degrees of success with lessons learned, and experiences gained, on all sides. Each of the exporters used its own model for working with smallholder farmers but relied heavily on Zim-AIED staff to provide on-the-ground technical support as they did not have the capacity to do so at the time. Had these smallholder models been a profitable venture for them, they were then prepared to cover extension costs in future endeavors.

**Model One.** Selby contracted 55 farmers to produce cherry peppers. Selby provided seedlings but no other inputs. A loan facility with MicroKing met the cost of inputs and labor. Selby also provided logistical support in the form of crates and transport. The cherry pepper program produced variable results with only 26 farmers out of the original 55 contracted selling any product to Selby. Flooded lands, crop neglect, and lack of labor for harvesting were cited as some of the reasons. A total of 10.2 tons was delivered to Selby with a 49 percent grade out ($2,786) and close to 3 tons kept on farm for sale as dried product.

**Model Two.** Lonrho contracted 104 farmers to grow 17 hectares of green beans on four irrigation schemes in Mutoko district, of which 41 farmers were linked to the contract scheme through Zim-AIED. Lonrho supplied full inputs to all the farmers on a cost-recovery basis as well as providing crates, transport, and limited technical support. Unfortunately, Lonrho experienced an extremely high level of side marketing of more than 60 percent of their expected product and although the farmers achieved excellent yields, most of the beans were sold to informal buyers who collected straight from their fields. Side selling was spurred on by shortages on the local market pushing prices to between $0.40 - $0.60 per kilogram and the farmers' desperation for "quick" cash. Although Lonrho had guaranteed growers a price of $1.30 per kilogram, they were only able to pay farmers one month after delivery, which had been clearly stated upfront in the contract and accepted by the farmers. The few farmers who sent beans to Lonrho were also required to pre-grade their crop due to stringent quality controls, but due to labor constraints most of them failed to do this efficiently. The resultant low pack outs increased the level of despondency among these farmers who then influenced the continued side marketing of the later harvests. Although this contract farming initiative was not an outright success for Lonrho, the farmers have earned around $1,900 per hectare and gross sales from beans resulted in a cash injection of more than $38,000 into the community.

**Model Three.** Vegieflora is a small horticultural export company that provided a market for mange tout and sugar snap peas, and were prepared to contract up to 50 growers if inputs were funded by an MFI. MicroKing at the time could not provide input loans and the company only bought peas from farmers producing on Zim-AIED sites where seed and fertilizer had been provided on a cost recovery basis. The farmers agreed to supply their own pesticides and hire additional labor. Vegieflora did not provide any logistical support. In this case, 33 percent of the farmers did very well having the capacity to purchase the correct pesticides, hire labor, and provide sufficient irrigation throughout the growing period. One farmer achieved a net exported yield of 14 tons per hectare, which is 75 percent higher than any large-scale producer. However, 33 percent of the farmers were

unable to hire labor for harvesting due to financial constraints and although they made a small profit, they did not benefit from the full potential of the crop as most of the final harvest was sold as shelled peas on the local market. The final 33 percent faced irrigation challenges and the crops did not perform well.

Although the demand for Zimbabwean fresh vegetables from international markets continues to increase, the involvement of the smallholder sector is still very limited. Unfortunately other factors such as the slide of the Euro against the US dollar have also affected the profitability of export production. Therefore Zim-AIED did not continue to pursue further activities linking smallholders to the export value chain.

**Table 3.6.4.1: Private Companies that Participated in Zim-AIED's Commercialization of Local Horticulture in Irrigation Schemes and Wetland Areas**

| Input Suppliers | | Markets | | MFIs |
|---|---|---|---|---|
| Seed suppliers | Prime Seeds, Charter seeds, Pannar, Pioneer, Seedco, Agriseeds | Formal | Favco, DG Patel, Willowmead, Selbys, MARS, Food lovers Market, Greens supermarket, Harare Produce Sales, Sandefer Investments, Simfresh, SPAR Plumtree, Komani Lodge Plumtree, Bio-remedies, Freshpro, Zambesi traders, ZESA training centre Hwange, Hwange Collery Guest Lodge, Makomo Resources, Baobab Hotel Hwange, OK Hwange, Mabhikwa High school, Fatima High School, Half Way House hotel, Blanket and Freda mines | Agribank, Quest Untu Capital Virl |
| Chemicals | Bayer, Syngenta, BASF, Agricura, Chemical Services Africa | Informal | Kombayi open market (Untu loan beneficiaries), Godini market Bulawayo(Quest loan beneficiaries), Hwange open market (Elton Zikhali, Lungisani Mudimba, Mr Mashange), Lupane open market, Dingimuzi Open Market Plumtree | |
| Agro dealers | Mellow stores, Bulawayo Seed Centre, Veterinary Distributors, Farm & City, National Tested Seeds, Harvest –A-Rama, | | | |
| Irrigation | Drip Tech | | | |

### *3.6.5 Local Horticulture*

Horticultural crops often provide the first opportunity for cash income for smallholders. They have a high value, can be produced on a micro-basis, and have local neighborhood markets as well as national and export demand potential. However, widespread commercialization at a level that can benefit many small-scale farmers can only be achieved if a reliable supply of water is available. Therefore, Zim-AIED's horticultural interventions targeted irrigation schemes and wetland areas in Matabeleland, Midlands, and Mashonaland East where many of these schemes are situated in low rainfall areas and money generated from crop production forms the main source of income for smallholder farmers.

**Market linkages and input suppliers**. Zim-AIED's market-driven approach has paid dividends over the past year with farmers experiencing strong local demand for their produce (cabbages, leafy

vegetables, tomatoes, potatoes, peas, carrots, butternut, and onions.) Two strategic workshops were held to sensitize both private sector markets and input suppliers to the business opportunities available within the irrigation schemes. Although Zim-AIED facilitated many linkages to input suppliers, buyers and MFIs in the cities closest to the agribusiness hubs, no subgrants were used for partnering with these companies. The workshops resulted in strong private sector support as they saw opportunities to expand their businesses and private sector funds were leveraged through their active participation in input supplier and market days, contribution to field day prizes, and provision of inputs for demonstration plots. These companies became well-known among Zim-AIED supported smallholders and will help ensure long-term sustainability of Zim-AIED's interventions by continuing their work with smallholders.

Lead farmers from Murewa, Gwanda and Insiza districts were also given the opportunity to visit both formal and informal urban markets in Harare, Bulawayo, and Gwanda to acquaint the farmers with the quality required by formal markets, their standards of grading and packaging so that effective, sustainable linkages could be created between the farmer associations and the various buyers.

**Strong technical support**. Since 2013, Zim-AIED established more than 300 demonstration plots on agribusiness hubs in Matabeleland, Midlands, and Mashonaland East to showcase good agricultural practices and new technologies. A broad selection of crops provided viable alternatives to traditional cereal crops particularly in frost-prone areas where cabbages, onions, carrots, and peas do well and are able to replace unprofitable winter wheat. As vegetable production requires a high level of management to achieve top yields and quality, Zim-AIED's technical team conducted training sessions and provided technical on-farm assistance through every step of the production process. Farmers have been trained in topics such as soil sampling for analysis, nursery establishment, planting, crop nutrition, weed management, correct plant populations, integrated pest management, safe use of pesticides, harvesting, and postharvest handling. To promote greater farmer buy-in, Zim-AIED also facilitated exchange visits for farmers to visit other schemes to see first-hand the tomato trellising system in use and discuss relevant management issues that they face.

**Table 3.6.5.1: GAPS and New Technologies Showcased on Demo Plots**

| Crop | GAPs and New Technologies |
|---|---|
| Butternut | Bed preparation, correct application of appropriate fertilizers, seed quality, plant spacing, pest and disease management. |
| Cabbage | Hybrid seed, nursery management, correct application of appropriate fertilizers, raised beds, plant spacing, water planting, pest and disease management. |
| Onion | Nursery management, plant spacing, pest and disease management. |
| Table potato | Use of certified seed, use of sprouting hormone Gibberellic acid, selection of basal fertilizers, plant population, ridging, foliar fertilizers, pest and disease management, harvesting. |
| Tomato | Hybrid seed, nursery management, correct application of appropriate fertilizers, raised beds, plant spacing, water planting, wire trellising, foliar fertilizers, pest and disease management. |

On schemes that have traditionally grown maize, wheat, or sugar beans, the demonstration plots are not only used to promote farmer adoption of new technologies but also introduce high-value crops. The common perception among government extension officers is that horticultural crops do not provide food security for farmers. However, they tend to be more accommodating of these new crops once they witness how farmers' incomes can be increased significantly and ultimately achieve (if not surpass) the same objective of improved household food security. The farmers hosting demo plots had signed contracts agreeing to pay back the loan amounts after harvest and these records helped build a credit history that was instrumental for alleviating the concerns of MFIs looking at providing input credit.

**Irrigation.** Secure access to reliable water has played a major role in establishing commercial horticulture production on irrigation schemes. Ongoing technical support in this area has reduced

the number of break downs, shortened repair turnaround time, conserved water, reduced the length of time between irrigation cycles, and created savings in utility bills.

**Leadership.** The success of an irrigation scheme rises or falls depending on its leadership. As a result, individual endeavors within the scheme are either negatively or positively impacted by the overall leadership. Zim-AIED has strengthened the IMC leadership in skills necessary to run the scheme efficiently, ensure the constitutions are revised, its bylaws adhered to, and bills paid on time. This has provided a secure background for investment by MFIs for horticultural crop production. Farmers have also shown greater confidence in investing in high-value crops without the constant threat of breakdowns or being cut off by service providers for non-payment of bills.

**Input funding**. This has been a critical part of the ongoing success and adoption of horticulture in schemes that traditionally grew cereal crops. Although horticultural production provides a high return on investment, the initial working capital required by farmers was often beyond their reach. With support from Zim-AIED partner banks and MFIs such as Virl, Untu, Quest, MicroKing, and Agribank, nearly $100,000 was extended through direct lending mechanisms to smallholder farmers on irrigation schemes for vegetable production since 2013. Ongoing meetings were held with senior managers and owners of these MFIs to provide sustainable solutions to working with farmers beyond Zim-AIED.

**Stakeholder engagement**. No farmer or irrigation scheme is able to work in a vacuum and a farmer's ability to select a crop based on anticipated revenue is often challenged by local authorities who may have different agendas. Realizing this, Zim-AIED actively engaged and collaborated with all government stakeholders from field to district levels. These stakeholders included AGRITEX field officers and supervisors, the Department of Irrigation, ward councilors, RDCs, DAEOs, and DAs. This is a key strategy for resolving issues that periodically surface at the schemes, thus reducing interference and creating long-term sustainability for any new initiative. A case in point is the breakthrough achieved when, after several seasons of working with AGRITEX officers, farmers were not forced to plant wheat for food security purposes and chose higher-value vegetables instead. Although there was initial resistance to horticultural production in some schemes, once stakeholders saw the budgets and understood what was involved, they could set aside their suspicions and were supportive of the new initiatives.

During FY2013, Zim-AIED engaged a consultant to work with four farmer groups in the Murewa wetlands area producing crops mainly for the domestic market. Farmers learned best production practices for their main crops namely tomatoes, peas, onions, and carrots. Key aspects of production were seedbed preparation, how to plant accurately with small seeds, importance of thinning, and how to protect the crops from frost. Many of the farmers attending the trainings applied these practices and achieved yields of 70 tons per hectare on their tomatoes.

Findings from the consultant that are useful for future programming include:

- It was difficult to get smallholder farmers to plant their crops sequentially to ensure continuity of supply. Village level politics undermined efforts of associations to organize their members to adhere to planting programs. As a rough estimate, village politics plays a significant role in approximately 60 percent of the operational areas.
- The need for value addition at the local level would help in creating employment and diversifying the market. The consultant worked with a local agrodealer who was prepared to start a small horticultural pack house to buy produce from the farmers, adding value through weighing and packaging product before selling to the formal markets. However, this initiative has been slow to take off as the agro-dealer was unable to secure a loan initially through MicroKing and became disheartened by the process so is self-financing this project.
- The need for basic technical bulletins on horticulture production. The consultant produced a series of basic handouts in the local languages, which have been well-received by the farmers.

### *3.6.6 Livestock*

Zim-AIED aimed to increase productivity among smallholder livestock producers through trainings and technical assistance in good agricultural practices including breeding, nutrition, and general animal husbandry practices; linking farmers to both input and output markets; and linking farmers to credit and financial services. The livestock component began in early FY2011 starting with a comprehensive evaluation of the various livestock value chains and key private sector players. Consequently, the beef and pork value chains were targeted based on their potential to integrate smallholder farmers and support their economic development. Two agribusinesses were initially selected as implementing partners: O'Enem Meats and Inala Enterprises. Progressively over the course of the program, Zim-AIED sought to engage new partners such as Livestock Zone in Nkayi.

In addition, Zim-AIED worked to integrate crop and livestock farming activities in and around targeted agribusiness hubs and irrigation schemes based on the program's whole farm approach to smallholder development. Activities supported introducing improved cattle breeds, rehabilitating livestock infrastructure, value addition through pen fattening, and linking livestock farmers to lucrative and sustainable markets through the O'Enem Meats abattoir in Chiweshe, the Inala Meat Market Centre in Nkayi, and the cattle auctions around the livestock management centers in Nkayi. Training in farming as a business was also an integral component of the livestock program.

**Beef production programs in Mashonaland Central.** The O'Enem Meats agribusiness hub was established around its cattle and pig abattoir located in the heart of the Chiweshe communal area. Program activities included contract farming for maize and soy bean production; technical assistance and trainings for both livestock and crops farmers; value addition through processing centers and feedlots; and linking farmers to input suppliers, output buyers and financial service providers.

The abattoir at O'Enem Meats' facilities had been dilapidated and nonfunctional for three years prior to Zim-AIED's intervention. The program supported its refurbishment to establish a viable market for the more than 5,000 cattle, pig, maize, and soy bean producers in and around Mashonaland Central. The abattoir also provided an opportunity for value addition through cattle pen fattening (using maize and soy bean grown by farmers), slaughter services, and meat processing. The specific refurbishments, funded through an $88,400 recoverable grant from Zim-AIED, included:

- Completion of water reticulation systems, pig sties, cattle pens and borehole to increase throughput to a target of 100 pigs and 125 head of cattle per month.
- Installation of generator to maintain the cold chain during electricity blackouts.
- Establishment of a feedlot with the capacity to hold 360 head of cattle in coordination with Comtex, a major cattle rearing and livestock trader partnered with O'Enem Meats. Comtex also bought maize and soy from contracted farmers in Chiweshe.
- Reconstruction of a 300-sow piggery unit, which had been lying idle since 2008. All pigsties were connected to clean water from the borehole distributed through pig-friendly nipples – an efficient way to provide animals with clean water while reducing wastage, keeping the sties dry, and reducing labor and cleaning costs. All wastewater from the pig sties is channeled to flow through anaerobic tanks to fishponds.

A total of 682 farmers were contracted to grow maize and soy bean during the first year of the partnership (2010/11 season). Unfortunately, the default rate of farmers was high causing the activity to shrink down to only 250 farmers in the 2011/12 season. In addition, 24 lead farmers were selected in the second season to cascade the agronomic practices promoted by Zim-AIED to other farmers as well as improve collections of loan repayments.

Due to the increased slaughters at the abattoir, O'Enem was able to open two more butchery outlets to expand sales of its products. On average the three butcheries sell 1 -1.5 carcasses of beef per day with a total sales value ranging from $24,000 to $35,000 per month depending on the season. Beef sales generated the greatest proportion of sales.

Through the Zim-AIED AgriTrade facility, O'Enem received a 12-month, $50,000 loan at 11 percent interest from MicroKing for working capital needed to purchase cattle slaughtered through the abattoir. The loan was disbursed in November 2011. However, by mid-2012 turnover at the abattoir was low in part due to refrigeration failures, as well as fluctuations in the prices of beef caused by an influx of cattle from Botswana. In addition to the refurbishment of the abattoir and the MicroKing loan, O'Enem also received a $35,000 recoverable grant from Zim-AIED to facilitate low cost (zero interest) working capital. This was also intended to facilitate cattle purchases in order to boost throughput at the abattoir.

In April 2013, Zim-AIED and O'Enem signed a Memorandum of Understanding to repossess and refinance the loan from MicroKing and grants from Zim-AIED, totaling $147,000, due to the company's failure to honor its repayment plan. In addition, Zim-AIED contracted an independent accounting firm, Norvellus Chartered Accountant Consultancy, to perform a complete business and financial analysis of O'Enem over the course of 12 months in order to strengthen the business' long-term stability, growth and profitability. Despite this effort, as well as the growth of the abattoir's business, the program has had no success in obtaining loan repayments from O'Enem which has shown a complete disregard for its agreements with the Zim-AIED program.

Regardless of the company's failure to repay, the impact of USAID's investments at O'Enem has been dramatic with the abattoir registering annual gross sales revenues of $309,614, $710,342, and $1,168,868 in 2012, 2013 and 2014, respectively. O'Enem's partnerships with larger meat processors such as Comtex and Montana Meats have increased the abattoir's market share of livestock products. Slaughters through the abattoir have increased by 500 percent, from an average of 36 cattle per month in 2011 to 188 cattle per month in 2014.

**Table 3.6.6.1: Economic Output at O'Enem Meats, FY2012-FY2014**

| Year | # of cattle slaughter ed | # of beneficiaries | Beef Sales ($) | Slaughter fees ($) | Value of processed products ($) | Hide Sales ($) | Total Sales ($) | % increase in total sales* |
|---|---|---|---|---|---|---|---|---|
| 2012 | 616 | 390 | 278,000 | $15,400 | 9,284 | 6,930 | 309.614 | 0 |
| 2013 | 1,385 | 635 | 623,000 | 34,625 | 37,136 | 15581.25 | 710,342 | 129% |
| 2014 | 2,266 | 908 | 1,020,00 | 79,310 | 44,280 | 25,278.00 | 1,168.868 | 64.55% |
| **Total** | 4,267 | 1933 | 1,921,000 | 129,335 | 90,700 | 47,789.25 | 2,188,824.00 | 277.52% |
| *Using 2012 as the baseline year | | | | | | | | |

**Beef production programs in Matabeleland.** Zim-AIED's partner fund agreement with Inala Enterprises in Matabeleland North was signed in July 2012. The partnership sought to commercialize smallholder cattle farmers in Nkayi district of Matabeleland North. Specific activities included the introduction of quality pedigree heifers and bulls through loan and lease schemes; establishment of central Nucleus Breeding Centers (NBCs) in three wards of Dakamela, Zinyangeni and Mukalati; training in good agricultural practices to local smallholder livestock farmers; and linking farmers to input markets for stockfeed and veterinary drug suppliers.

Training focused on dosing, castration, cattle nutrition, vaccinations, and fodder production, conservation and utilization. The NBCs were equipped with cattle pens, a race, a cattle crush, loading ramps and boreholes. The NBCs are ideal centers for cattle pen fattening and consolidation for sale through auctions and to private buyers.

In the third quarter of FY2014, Zim-AIED partnered with the Bulawayo-based cattle trading company, Livestock Zone, to scale up the heifer loan program in Nkayi and leverage the company's value addition activities to the benefit of program-supported farmers. Livestock Zone works with farmers on community-owned feedlots where it supplies stockfeed for pen fattening on loan, payable through a straight deduction at the time animals are sold. Zim-AIED and Livestock Zone also linked feedlot farmers to the lucrative livestock markets in Bulawayo.

A total of 151 genetically improved heifers were purchased through recoverable grants from Zim-AIED and distributed to 94 farmers who repaid by exchanging their mature, inferior quality cattle. Beneficiary farmers were carefully selected based on their participation in the training program and commitment to achieve commercial-scale production of livestock.

**Table 3.6.6.2: Summary of Zim-AIED's Livestock Genetic Improvement Program**

| Scheme | Heifers Exchanged | # of beneficiaries | Calves born from exchanged heifers | Average herd size before exchange | Current average herd size | Minimum herd size before scheme | Current cumulative herd size | Initial cumulative herd size |
|---|---|---|---|---|---|---|---|---|
| Inala Enterprises | 91 | 61 | 38 | 9 | 12 | 0 | 756 | 536 |
| Livestock Zone | 60 | 33 | 46 | 18 | N/A | 5 | N/A | 595 |
| **Total** | **151** | **94** | **84** | **12** | **N/A** | **0** | **N/A** | **1,131** |

Through the recoverable grant, Inala also purchased two Beefmaster bulls and 48 breeding heifers to expand its cattle leasing program from an initial 10 beneficiary households in 2012 to 33 households by 2013. The lease program served to increase beneficiaries' breeds and herd sizes, as well as provide needed milk, manure and draft power to smallholder households.

In August 2014, three Brahman bulls were availed to communal farmers participating in the leasing program, adding to the 25 bulls already deployed by Inala to the community. The bulls will be used to service the cattle population around the NBCs, gradually improving the genetic quality of the herds in the area. The bulls have already infused improved genetics in the traditional cattle breeds – characterized by high fertility rates, resistance to drought and diseases, large-frame, and highly responsive to pen feeding.

Inala's meat market center is also central to the strategy of consolidating farmers' livestock sales where animals can be slaughtered and sold as carcasses to wholesalers and meat processors in Bulawayo and beyond. In addition, a proportion of the meat is sold through the center's retail shop for the benefit of local communities.

**Table 3.6.6.3: Number of Cattle Slaughtered at Nkayi Meat Market Since Inception**

| Quarter | Total Beef sold (kg) | No. of beast slaughtered | Number of farmers | Total Sales ($) |
|---|---|---|---|---|
| Q4, 2013 | 3,125 | 21 | 18 | 10,203 |
| Q1, 2014 | 4,665 | 30 | 28 | 16,656 |
| Q2, 2014 | 7,034 | 44 | 41 | 24,967 |
| Q3, 2014 | 7,688 | 50 | 47 | 24,665 |
| Q4, 2014 | 7,478 | 47 | 43 | 28,167 |
| Q1, 2015 | 6,527 | 40 | 38 | 25,341 |
| Q2, 2015 | 3,931 | 29 | 27 | 16,911 |
| **Total** | **40,448** | **261** | **242** | **146,910** |

Thirty para-vets from Inala Enterprises participated in training-of-trainers courses in good animal husbandry practices to enhance local knowledge of the beef calendar; winter management practices including castration, dehorning, and supplementary feeding; vaccination protocols; and marketing of cattle and goats. The para-vets play a critical role in cascading the technical skills imparted by Zim-AIED through regular trainings to livestock farmers. The ultimate objective is to privatize these well-trained para-vets so they can provide their services at commercial rates to the smallholder livestock community.

**Crop and livestock integration.** Activities integrating crop and livestock farming were confined to agribusiness hubs in Mazowe district (Mashonaland Central); irrigation schemes in Matabeleland

North and South, Midlands, and Manicaland provinces; and to the dryland areas of Nkayi district in Matabeleland North. Zim-AIED technicians established 20 fodder demonstration plots in Matabeleland North and South provinces. Fifteen are under dryland farming in Nkayi district while five are on irrigation schemes throughout the two provinces. The program also established three fodder demo plots at Ngondoma, Exchange, and Hama Mavhaire irrigation schemes in the Midlands province and a further five around the Gokwe Milk Collection Center. In Manicaland, the program established a total of 13 fodder demonstration plots.

The fodder demonstration plots showcased good production practices for velvet bean, sun hemp, silver leaf, giant Rhodes grass, and lab-lab. Velvet bean is one fodder crop that has shown great potential as a drought-mitigating fodder crop, especially in the drier regions IV and V. While all other crops, including sorghum and pearl millet, were succumbing to moisture stress due to the mid-season dry spell, velvet bean grew vigorously and benefited significantly from the late April rains.

**Pen fattening and value addition**. Zim-AIED provided feedlot training, technical assistance, and market linkages for 77 smallholder farmers in Midlands and Matabeleland North province to fatten 126 cattle from eight feedlots that have been sold to abattoirs in Bulawayo, Kwekwe, and Kadoma. The introductions to feedlot practices were done through a feedlot demonstration which was funded by Zim-AIED through a recoverable grant. Thereafter farmers and or farmer groups were linked to microfinance institutions, meat and feed processors, or the farmers self-financed their operations.

The project was a huge success with farmers achieving 100 percent repayment to Zim-AIED, the MFIs, and Heads and Hooves while doubling their incomes in less than two months. Farmers earned a maximum of $1,200 per carcass (averaging $750) and maximum net returns of $748, compared to less than $500 which is the going price for animals that have not been pen-fattened.

An emergency stock feed intervention in five wards of Nkayi district in Matabeleland North helped save 490 cattle from starvation during the period October to December 2014. Zim-AIED facilitated farmers' purchase of 65 bags of pen feeding meal. In addition to the stock feed, Zim-AIED trained 157 farmers on animal feed options and various aspects of livestock supplementary feeding. Zim-AIED worked with smallholder farmers to develop sustainable market linkages with stock feed markets and to adopt local fodder conservation strategies to keep their livestock in good condition during the dry season and in times of drought.

**Table 3.6.6.4: Average Livestock Grades and Sales Values of Cattle Sold from Zim-AIED Feedlots**

| Name of Feedlot | Number of animals per grade | | | | Returns | | | |
|---|---|---|---|---|---|---|---|---|
| | Super | Choice | Commercial | Economy | Lowest Gross Income per animal ($) | Highest gross income per animal ($) | Lowest gross margin per animal ($) | Highest gross margin per animal($) |
| Fanisoni (Nkayi) | 1 | 1 | 7 | 0 | $745 | $1,006 | $375 | $652 |
| Zamalokhu (Lupane) | 2 | 5 | 3 | 4 | $533 | $1,081 | $247 | $744 |
| Zenzele - Dandanda (Lupane) | 0 | 1 | 10 | 5 | $396 | $1,018 | $187 | $744 |
| Tshongokwe Irrigation scheme | 1 | 6 | 4 | 3 | $443.83 | $1,026 | $288.43 | $870.86 |

**Dairy.** In December 2013, Zim-AIED agreed to provide continuity and innovation to a limited scale of programs initiated under the USAID-funded Land O' Lakes Dairy Development program. Based on the assessed capacity of the various locations supported by Land O' Lakes, and their potential for commercialization and sustainable growth, Zim-AIED selected four target areas (Rusitu, Tsonzo, Claremont, and Gokwe) to focus its activities through three primary interventions:

- Promoting on-farm, low-cost fodder production systems based on good fodder planning and budgeting by farmers.
- Implementing a market-based breeding program using artificial insemination (AI) from professional and competent service providers.
- Engaging milk processors to actively participate in the design, development and promotion of dairy development programs at the smallholder level.

*Fodder production.* A total of 27 lead dairy farmers and 240 milk collection center members from the four target areas were trained on fodder flow, planning, production and budgeting to ensure a reliable supply of fodder for dairy animals throughout the year. As a result, lead farmers in FY2015 collectively produced 645 tons of silage from maize, sugar graze and legumes; and 455 tons of hay. This represents a 55 percent and 91 percent increase in silage and hay production, respectively, as compared to production in FY2014.

However, the total area planted under forage still falls short of the total annual feed requirements for dairy herds. Ideally the forage component should contribute 60 to 70 percent of the feed ration in order to increase profitability of small-scale dairy enterprises. Farmers cited poor access to inputs such as pasture seed, maize seed, fertilizers, herbicides, and pesticides as the main challenges to adoption and implementation of the formulated fodder flow plans. However, some progressive lead farmers in Tsonzo and Mayfield have already adopted the zero grazing approach and now feed their animals entirely with self-produced forage or procured stockfeed.

Zim-AIED also coordinated with lead farmers that received USADF loans in order to implement their fodder flow production plans by establishing revolving funds at their respective MCCs for the sustainable procurement of inputs. Additional lending will be required if farmers are to produce enough silage and hay to feed their cattle throughout the year.

Irrigated winter pastures are a low-cost source of quality home-grown feed for dairy animals, but farmers again cited lack of irrigation facilities, pasture seed, and cropping inputs as the major barriers to expanding production. In Chipinge, MicroKing initially showed interest in supporting forage production lending schemes to dairy farmers with access to irrigation; however, this was stalled due to its parent bank's ongoing liquidity crisis. The pasture seed available in Zimbabwe must also become more cost effective as the majority is still being imported from South Africa and elsewhere.

Herbicide training was provided to dairy farmers in Gokwe to improve fodder yields and reduce labor costs on weeding. Farmers' initial pessimism was quickly reversed after witnessing the impressive yields achieved by lead farmers that applied herbicides on their fodder crops for weed control. More work is required to popularize the use of herbicides in pasture agronomy as weed infestation can significantly reduce pasture yields, especially with the slow-growing leguminous and grass species.

Zim-AIED helped farmers implement input procurement schemes modelled on mobilizing MCC members to make required cash contributions to reserve and purchase key inputs from various dairy input suppliers. Through this system, Zim-AIED strengthened farmers' linkages with credit and input suppliers, allowing them to improve the timeliness and cost effectiveness of their input procurements. Many dairy farmers are now well-linked to fertilizer and agrochemical suppliers.

Efforts by Zim-AIED to link farmers to equipment suppliers are also yielding dividends. With various grants from USADF totaling $4,600, the MCCs at Rusitu, Mayfield, and Tsonzo bought custom-made mobile silage and hay chopping machines from Precision Grinders, while the Gokwe MCC bought a tractor and mobile silage chopper from Radzim. Zim-AIED trained farmers on costing schemes to manage machine usage, maintenance and repair.

**Table 3.6.6.5: Silage and Hay by Zim-AIED Supported Lead Farmers**

| Milk Producers Association | Number of lead farmers | | Area under fodder (ha) | | Tons of silage | | Tons of hay and other crop residues | | Tons of commercial feed/month | | Total herd sizes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2014 | 2015 | 2014 | 2015 | 2014 | 2015 | 2014 | 2015 | 2014 | 2015 |
| **Mayfield** | 1 | 2 | 3 | 4 | 85 | 100 | 6 | 15 | 0.15 | 0.6 | 7 | 14 |
| **Upperand** | 2 | 3 | 6 | 6 | 16 | 60 | 13 | 20 | 0.225 | 0.9 | 11 | 20 |
| **Rusitu United** | 2 | 5 | 1.32 | 3.5 | 48 | 75 | 9 | 50 | 0.225 | 0.3 | 12 | 26 |
| **Tsonzo** | 2 | 4 | 3 | 7.5 | 100 | 150 | 15 | 80 | 0.45 | 1.2 | 14 | 22 |
| **Gokwe** | 10 | 10 | 15 | 20 | 120 | 200 | 95 | 100 | 7.5 | 8 | 76 | 94 |
| **Claremont** | 2 | 2 | 8 | 8 | 45 | 60 | 100 | 190 | 15 | 42 | 42 | 45 |
| **Totals** | 19 | 26 | 36.32 | 49 | 414 | 645 | 238 | 455 | 23.55 | 53 | 162 | 221 |

*Dairy Cattle Breeding.* Zim-AIED, in partnership with African Breeders Services–Total Cattle Management (ABS-TCM), held dairy cattle breeding workshops in Rusitu, Tsonzo, Gokwe, and Claremont to train farmers on good dairy cattle breeding practices. Sustainable relationships between ABS-TCM and farmers in Rusitu, Tsonzo, Claremont, and Gokwe have been established and ABS-TCM is now selling semen from world-class bulls to farmers across the four focus areas. ABS-TCM is also offering AI services such as pregnancy diagnosis and Estrus synchronization to dairy farmers in Gokwe and Claremont.

Farmers at Rusitu and Tsonzo engaged resident AI technicians trained under the USAID-funded Dairy Development Program to carry out AI services for MCC member Milk Producers Associations (MPAs), while farmers at Claremont MCC engaged AI technicians from the Matopos Research Station. It has become apparent that resident AI technicians have low proficiency rates compared to Matopos and ABS-TCM technicians. Farmers require additional training to cover important aspects such as formulating breeding plans, heat detection, selecting heifers for servicing, construction of appropriate infrastructure for cow handling, appropriate dairy cattle nutrition, recordkeeping, and bull selection.

**Table 3.6.6.6 AI Activities at MPAs Supported by Zim-AIED from FY2014 to FY2015[a]**

| Milk Producers Association | Semen Straws purchased | | | Sources of semen | Number of cows inseminated | | | AI service Providers | AI Success Rates ** |
|---|---|---|---|---|---|---|---|---|---|
| | FY2014 | FY2015 | Total | | FY2014 | FY2015 | Total | FY2014-FY 2015 | LOP |
| Tsonzo | 80 | 0 | 80 | ABS, and Livestock Identification Trust | 21 | 9 | 30 | Resident AI technicians | 35% |
| Gokwe | 25 | 40 | 65 | ABS | 25 | 16 | 41 | ABS-TCM | 48%[b] on the first 25 cows inseminated the other 16 cows had not been assessed at the time of reporting |
| Mayfield | 30 | 0 | 30 | Livestock Identification Trust | 17 | 0 | 17 | Resident AI technicians | 55% |
| Upperand | 13 | 0 | 13 | ABS | 13 | 0 | 13 | Resident AI technicians | 35% |
| Rusitu United | 22 | 42 | 64 | ABS | 22 | 12 | 34 | Resident AI technicians | 40% |

**Table 3.6.6.6 AI Activities at MPAs Supported by Zim-AIED from FY2014 to FY2015[a]**

| Milk Producers Association | Semen Straws purchased | | | Sources of semen | Number of cows inseminated | | | AI service Providers | AI Success Rates ** |
|---|---|---|---|---|---|---|---|---|---|
| | FY2014 | FY2015 | Total | | FY2014 | FY2015 | Total | FY2014-FY 2015 | LOP |
| Claremont* | 0 | 71 | 71 | ABS, and the Zimbabwe Dairy Industry Trust | 0 | 31 | 31 | Matopos Research Station | 72% on the first 18 cows inseminated the other 13 cows had not been assessed at the time of reporting |
| **Totals** | **170** | **153** | **323** | | **98** | **68** | **166** | | |

***LOP AI success rates are based on actual follow-up pregnancy diagnoses*

*[a] Figures for FY2015 are through May 2015*

*[b] A lot of uterine infections were suspected in a number of cows as evidenced by some abortions which occurred. Uterine infections are prevalent in herds that are communally grazed and that share a communal bull*

*Milk production.* Milk production in the targeted milk production centers is often inconsistent due to farmers' disorganized management of their herds' key productivity indices. Dry periods and calving intervals are generally very long and variable among the farmers, which can adversely affect the number of milking cows producing milk, and amount of milk produced by those cows still producing milk. Calving intervals should be between 12 and 13 months. Application of AI can help maintain the calving interval within the recommended range. Feed is also a key factor. Although most farmers have adopted fodder planning, production and conservation technologies, poor access to credit and inputs can limit their implementation and therefore cause severe challenges to maintaining the adequate body condition of animals throughout the year, thus hampering conception and milking periods.

During implementation of Zim-AIED's dairy program (FY2014 to May 2015), a total of 937,772 liters of raw milk was produced by the five assisted MCCs. These milk production volumes directly correlate to the effects of the agro-ecological zones on dairy production. Average milk yields per cow remain very low, at below 10 liters per cow per day. This is attributable mainly to poor genetics and poor nutrition, especially during the dry season (Table 3.6.6.7).

**Table 3.6.6.7: Milk Production at Zim-AIED Assisted MCCs, FY2014 to May 2015**

| MCC | Total production FY2014 (liters) | Total Produc. Q1, FY2015 (liters) | Total Produc. Q2, FY2015 (liters) | No. of Dairy Animals in FY2014 | No. of Farmers in FY2014 | Yield per cow per day in FY2014 (liters) |
|---|---|---|---|---|---|---|
| Gokwe | 88,938 | 21,810 | 33,300 | 101 | 33 | 3.14 |
| Mayfield | 202,348 | 53,789 | 39,910 | 130 | 78 | 7.16 |
| Rusitu United | 116,002 | 28,518 | 27,762 | 45 | 38 | 4.10 |
| Tsonzo | 91,817 | 29,000 | 32,263 | 40 | 23 | 3.25 |
| Claremont | 96,557 | 26,809 | 48,900 | 47 | 18 | 3.41 |
| **Total** | **595,662** | **159,926** | **182,135** | **363** | **190** | **4.21** |

**Trainings in GAPs.** A total 701 (286 female and 415 male) livestock farmers were trained in good agricultural practices including fodder production, fodder conservation, fodder utilization, calf rearing, dairy cattle nutrition, dairy cattle health, dairy cattle breeding, clean milk production, and recordkeeping across the five MCCs.

In Rusitu, Dairiboard conducted a workshop on milk quality with the Milk Collection Center management committees in a bid to improve milk quality results. Dairiboard is also in the process of linking farmers to BANC ABC for procurement of dairy cows to complement the MicroKing Dairyfin Facility.

### 3.6.7 Value Addition: Handling and Processing to Boost Profits

Zim-AIED worked with a number of its PFA partners and buyers to develop opportunities for value addition of commodities purchased from beneficiary farmers. Farmer participation in value addition was mainly confined to on-farm grading to ensure food quality. The buyers and private companies were more involved in the value addition processes in compliance with international food standards.

**Paprika.** At the farm level, farmers were encouraged to purchase poly sheets to dry their paprika hygienically to maintain quality (grade A) paprika pods and reduce the incidence of aflatoxin contamination and dust in the final product. Two local processors, ZimSpice and Pure Seasons, bought 60 tons and 31 tons of grade A paprika, respectively, from Zim-AIED-assisted paprika farmers in FY2014. Pure Seasons processed 27 tons of paprika into powder for the domestic market and ZimSpice processed 30 tons.

**Tabasco chili.** In FY2014, a total of 290 tons of grade A fresh Tabasco chili pods purchased from Zim-AIED beneficiary farmers were ground and mixed with salt to make 320 tons of Tabasco chili mash for export to the Chili Pepper Company in South Africa for onward export to the United States. Zim-AIED partner Better Agriculture has set up three processing plants at Nyakomba irrigation scheme in Nyanga, Hauna business center in Honde Valley, and a new plant at Tombo in Nyanga district to handle the crop from contracted growers.

**Grains, staples, and other food crops.** Mr. Ignitias Jumbe owns Grafar Investments P/L, a stock-feed manufacturing company located in Goromonzi district in Mashonaland East province that started operations in May 2009. He accessed his first AgriTrade loan for $20,000 through MicroKing in August 2014 and buys maize and soybeans from communal farmers in Mashonaland East, West and Central for milling into stock feed. Communal farmers and urban dwellers involved in poultry and piggery production purchase the stock feed at average prices of $29.00 per 50 kilograms.

Since accessing the AgriTrade loan, he is now purchasing on average 50 tons of maize per month, up from 20 tons per month, as well 20 tons of soybeans, up from 10 tons prior to the loan. Jumbe's monthly turnover has also increased from an average of $10,000 to about $15,000, a 50 percent increase in monthly income. Using profits realized from the business, Mr. Jumbe purchased a simple feed plant and a maize milling plant for manufacturing stockfeed.

As a first time beneficiary of a $15,000 loan in July 2014, Mrs. Velocious Mhanga expanded her restaurant business in Gweru. She purchased additional meat, chicken, and vegetables from smallholder farmers in the Midlands province. Monthly sales have improved by 40 percent from $25,000 to more than $35,000 now and sells up to 1,000 meals a day. With the profits, Mhanga purchased an industrial oven, a dough mixer and warmer, all valued at $7,000 in the month of September 2014. She has also added seven new full-time employees.

**Meat products.** O'Enem Meats beef sales totaled $193,959 with 4,267 head of cattle slaughtered between 2012 and 2014. Cattle slaughters increased from 616 head in FY2012 up to 2,266 head in FY2014. The overall meat production and meat product sales increased by 37 percent and 70 percent in FY2013 and FY2014, respectively. Since inception, Inala's Meat Market in Nkayi slaughtered 261 head of cattle purchased from 242 smallholder farmers in the district yielding a total of 40,448 kilograms of beef. The value of total sales, made within the district, was $146,911.

**Dairy.** During implementation of Zim-AIED's dairy program (FY2014 to June FY2015), a total of 937,772 liters of raw milk was produced by the four MCCs. Mayfield MCC produced the highest volume with a total of 296,047 liters, followed by Rusitu United (172,282 liters), Claremont (172,266 liters), Tsonzo (153,080 liters), and Gokwe (144,048 liters). MCCs supplied raw milk to formal milk processers, Dairiboard Zimbabwe Limited (Chipinge) and Den Dairy (Kwekwe) for the production of dairy products. At Gokwe and Tsonzo MCCs, 76 percent and 26 percent of the milk produced was processed into fermented milk, yogurt and pasteurized fresh milk for sale in local markets.

### 3.6.8 Irrigation

**Impact at a glance**

- 9,676 beneficiary farmers
- 42 irrigation schemes
- 6,305 hectares
- 354 training events on targeted irrigation hubs
- 5,964 unique beneficiaries
- 54 percent women

Widespread commercialization at levels that can benefit many smallholder farmers can only be achieved if a reliable supply of water is available. Zim-AIED has worked with 9,676 farmers on 42 irrigation schemes in seven provinces across Feed the Future target areas impacting 6,305 hectares of production since the beginning of the project. Sixty-two percent of these schemes are located in climatic regions IV and V and make a significant economic contribution to the rural communities enhancing food security in these drier areas. The 2014/15 growing season is a case in point where there was a complete crop failure on dryland maize in the Chipinge and Chimanimani districts but the crop grown on irrigation schemes (Mutema, Chibuwe, Musikavanhu, Taona, Bwerudza) sustained communities as far afield as Buhera who bought early harvested maize at between $7-9 per bucket ($420 – 540 per ton). People from the villages closer to the schemes were accessing the maize in the form of barter trade for work done on the irrigation plots.

Zim-AIED conducted an initial survey of more than 70 irrigation schemes and selected those that did not require major rehabilitation but would benefit from Zim-AIED's agribusiness hub approach. All these combined significantly to improve the lives of smallholder farmers on the schemes as they not only moved away from low margin crops like wheat, but focused on new high-value horticultural crops such as butternut, cabbage, tomatoes, and onions. They also increased their yields on crops like maize, green mealies, and sugar beans. An excellent example of this is at Tshongokwe irrigation scheme in Matabeleland North where Michael Ngwenya, the IMC Chairman, provided his estimated crop figures in Table 3.6.8.1.

**Table 3.6.8.1: Crop Yields Before and After Zim-AIED Interventions at Tshongokwe Irrigation Scheme**

| Crop | Yield/0.1ha Before | Yield /0.1ha After |
|---|---|---|
| Sugar beans | 6 buckets (108 kg) | 15 buckets (270 kg) |
| Green mealies | 155 dozen | 300- 350 dozen |
| Tomatoes | 100 buckets (1800 kg) | 200 buckets(3,600 kg) |
| Maize | 300 kg | 900-1100 kg |
| Butternut | Not grown prior to Zim-AIED | 1,500 – 4,300 kg |
| Cabbage | Not grown prior to Zim-AIED | 2,700 heads |

Zim-AIED facilitated 354 training events within the targeted irrigation hubs with 5,964 unique participants (54 percent women) covering practical aspects of water management, drainage, operations and maintenance, pump servicing and procurement of spares, utility bill payments, negotiations, soil and water conservation, and canal cleaning and maintenance. These training events were buttressed by strong technical assistance and support in coordinating stakeholder meetings.

Over the last few years, Zim-AIED initiatives on irrigation schemes gained traction with strong partnerships forged between smallholder farmers and various companies in the value chain, thus ensuring long-term sustainability. Zim-AIED worked with marketing companies, farmers, AGRITEX and other government departments to commercialize these schemes through the introduction of high-value crops for domestic markets. However, Zim-AIED was unable to continue activities on several schemes due to perennnial water challenges caused by lack of rains and siltation problems (Mkoba, Mzinyanthini, Siwazi, Masholomoshe) or challenges in getting an MOU signed in the relevant district (Mazoe).

The impact of Zim-AIED's support to irrigation schemes will continue to benefit farmers in skills transfer and cost savings long after the close of the project. They play a critical role in achieving

Zim-AIED's objectives of increasing income, employment, and food security in low rainfall areas. From October 2013 through July 2015, farmers on Zim-AIED-assisted irrigation schemes have saved $391,934 on their utility bills by having a better understanding of the billing mechanisms used and improved communications and strengthened negotiation skills. There were several simple mistakes that were being made that were easily rectified with Zim-AIED's assistance, namely:

- **Annual water applications**. Farmers were not taking into account the actual land area under irrigation when they applied to ZINWA each year for their water allocation and as a result, in many cases they had the extra burden of paying for a large number of absentee plot holders. When these were taken into account, they were able to reduce their monthly payments e.g. Silalabuhwa, Lukosi, Makwe, Insukamini, and Ngondoma. In the case of Tshongokwe, the farmers were being charged for more water than was available in the dam (500ML per year reduced to 288ML per year.) With reduced monthly bills, the farmers have maintained a better payment record and have avoided random disconnections that would often destroy their current crops exacerbating the situation even more.
- **Access to statements**. This was a simple but critical link to very important information that the farmers did not originally have access to. Having an up-to-date statement from ZINWA and ZESA enabled them to negotiate with these important stakeholders in several key areas that have been highlighted in previous reports; interest rates charged on amounts carried forward when the currency was dollarized (Exchange and Silalabuhwa); charges incurred even when the scheme was not operational due to extended periods of pump breakdown (Exchange and Fanisoni); incorrect charges per mega liter for smallholder farmers as commercial rates were applied instead of communal rates (Moza$13.74/ML reduced to $7.97/ML); billing mechanism where water usage was determined by the number of pumping hours rather the traditional water allocation normally used (Hama-Mavahaire saved 70 percent of their monthly water bill, a savings of $1,991 every month); farmers negotiated on actual meter readings instead of inflated estimates (Gwiranenzara); and finally the farmers were encouraged to claim the dispensation government promised prior to the last national elections.
- **Decentralized billing**. This was a major breakthrough for the Silalabuhwa farmers as there were 3 productive blocks that had been consistently penalized by continual disconnections as those blocks that were not so productive were failing to pay their water bills.

Zim-AIED recorded other successes in improving irrigation management, including:

- Implementation of a 60-hectare micro-jet irrigation system at Mutema irrigation scheme in Chipinge for banana production was a brand new innovation in that area at the time and has benefitted the farmers through reduced ZINWA and ZESA costs compared to the previous less efficient flood irrigation system.
- Zim-AIED worked closely with the various IMCs and farmers providing training and technical support not only on practical aspects of crop management but also on strengthening their leadership and organizational capacities using the business approach. This includes putting in place systems that reward compliance and penalize errant behavior through implementation of pre-existing or revised by-laws brought about in new constitutions. Zim-AIED trained water bailiffs on the schemes who help to enforce these bylaws resulting in uninterrupted production. Schemes like Makwe experienced more than one year of continuous production, something that was unheard of before.
- Farmers on 85 percent of the focus irrigation schemes managed to reduce pump down times by setting up structured maintenance funds and routine pump maintenance among themselves. The schemes mobilized resources to invest in infrastructural rehabilitation and repairs. Collectively, smallholder farmers contributed more than $100,000 from their operation and maintenance funds toward the repair of irrigation infrastructure and equipment and planned maintenance work, reducing repair times from three weeks to three days on average.

- Natural resource management continues to be a focal area for Zim-AIED interventions on irrigation schemes where soil and water conservation strategies are implemented. Farmers purchased plastic to line their canals at the Bwerudza irrigation scheme to improve flow and reduce percolation losses along conveyance canals. At Moza irrigation scheme, soil salinity build up in certain low lying areas was alleviated when Zim-AIED staff assisted farmers by providing levels for land levelling and digging of canals.
- During several rainy seasons over the course of the project, the rains were mostly erratic but intermittent heavy showers resulted in waterlogged fields causing a setback in production. Zim-AIED used the opportunity to train farmers in proper drain maintenance as many farmers traditionally dump crop material at the ends of their fields, thus blocking the free flow of water. Fortunately, many farmers were able to save their crops through quick action taken to clear these areas using local labor resources as this activity had now become a priority.
- Practical assistance has been provided by Zim-AIED technicians in many pump repairs, assisting farmers on spares required and in the selection of reliable vendors rather than using local mechanics of dubious repute. At Gwiranenzara irrigation scheme, Mutoko, Zim-AIED managed to get prompt assistance from ZESA to increase their power line voltage from below 270 volts to an average of 380 volts as well as to repair a leaking transformer. Unbeknown to the farmers, both of these problems plagued them by causing frequent break downs of their electric motor.
- Shortened irrigation cycles through improved water management has helped many farmers to achieve better yields due to crops experiencing less stress. An example of this is where farmers at Ngondoma were originally receiving irrigation water after a three-week cycle but managed to reduce this to nine days.

# 4. CLIMATE CHANGE AND ENVIRONMENT

Over the life of the program, Zim-AIED placed environmental concerns at the core of its agricultural development interventions because sustainable farming practices are critical to long-term profitability. Zim-AIED technicians trained a total of 48,577 farmers, of which 22,058 (55 percent) were women, in NRM topics covering water management, integrated pest management, and conservation agriculture and safe disposal of chemicals. Training on the safe use of chemicals covered safe handling, disposal of pesticides and containers, preferential use of PERSUAP compliant chemicals, and the importance of using appropriate protective equipment when handling chemicals. As a number of farmers attended more than one session, the number of unique trainees in NRM is slightly lower at 40,162 although the proportion of women attending remains the same at 55 percent. As women make up the majority of the labor force that works the land, it is appropriate that they have attended training sessions in greater numbers than the men.

**Table 4.1.1: Farmers trained in NRM over Zim-AIED's life of the program**

| Subject Area | Male | Female | Total |
|---|---|---|---|
| Water management | 701 | 990 | 1691 |
| Integrated pest management | 15,541 | 19,615 | 35,156 |
| Conservation agriculture | 1,181 | 1,074 | 2,255 |
| Safe use and disposal of chemicals | 1,253 | 1,116 | 2,369 |
| Fire prevention methods | 146 | 234 | 380 |
| Soil conservation methods | 1,033 | 1,424 | 2,457 |
| Personal protective equipment | 868 | 846 | 1,714 |

*Source: Zim-AIED*

**Chemicals.** More banana farmers are adopting herbicide technology introduced in banana fields in Rusitu and Honde Valley, Manicaland. This technology offers a cost effective way to control weeds

and replaces traditional hoeing. Herbicides reduce weeding costs by 80 percent, help maintain soil structure, and reduce prevalence of erosion on the steep terrain.

Weed pressure from incessant rains across the whole country in late December 2014 and early January 2015 resulted in a buildup of weeds and diseases. Having met with a severe outbreak of Sigatoka leaf disease in Honde and Rusitu in past years, Zim-AIED-trained banana farmers managed to control the disease without the use of chemicals by using cultural hygiene practices and leaf management programs to arrest the destructive disease. In addition the adoption of correct density of 2,000 plants per hectare has enhanced control of the disease by maintaining effective air flow through the canopy, reducing humidity.

In paprika production, beneficiary farmers received training on field hygiene and crop destruction to maintain dead periods to control pests and diseases and destroyed paprika and tobacco crop residues in line with the legally-enforced crop destruction dates.

To control/reduce maize streak virus on agribusiness hubs in dryland areas, integrated pest management (IPM) and crop rotation were particularly encouraged. Farmers were encouraged to clear the zones around their fields and create barriers to pest build-up.

A number of Zim-AIED beneficiaries used herbicides and fungicides in particular on their sugar bean crops; however few of them had the full personal protective equipment. Generally, farmers understand the necessity of personal protective equipment (PPE) but many do not even use overalls because of financial constraints. Therefore, farmers require continuous training on this topic; Zim-AIED has been involving AGRITEX personnel in the NRM training sessions to ensure continuity of the message post Zim-AIED. In addition, Zim-AIED has given out personal protection equipment (gloves, respirators, and gum boots) as prizes to the winning farmers on field days arranged by farmers in agribusiness hubs.

**Livestock.** The livestock team established a total of around 50 fodder demonstration plots to showcase proper fodder production, conservation, and utilization. The fodder crops enable greater environmental stewardship by farmers by providing additional stock feed that reduces pressure on the already-degraded veldt.

In Nkayi, Rusitu Valley, and Chiweshe forage legumes and improved grass species were introduced into rangelands and farmer-owned paddocks to improve the poor quality of currently available forage and to suppress noxious weeds that tend to invade degraded rangelands and paddocks. This also improves soil fertility and palatability of food sources for livestock. Zim-AIED gave technical advice on environmental issues to farmers involved with the operations of the three established feedlots. The advice mainly emphasized the need for the feedlot pens to observe sufficient exclusion zone distances from homesteads and water sources so as to avoid contamination; handling of excess manure from the feedlots; and observance of good practices in handling and disposal of pesticides and drugs used in the feedlots. Livestock farmers were also advised to use cattle manure from the feedlot in their cropping fields as a way of recycling the nutrients.

In Matabeleland this is widely used by farmers who are practicing conservation agriculture. Farmers at Ngondoma and Takawira, Kwe Kwe district, started their own feedlots and were advised by Zim-AIED to:

- Avoid contamination of water sources by locating feedlots at least 30 meters away from water sources such as wells and boreholes to prevent any spills from reaching the water source.
- Site feedlots well away from residential dwellings to avoid potential air pollution.
- Ensure sites are well away from areas of alluvial soils, flood plains, or karst areas.
- Include manure management systems, to prevent runoff to protected areas, and collect manure to support crop production under crop and livestock integration as fertilizers.
- Consider overland flow issues and downslope filtering of runoff and grazing of run-on areas when siting feedlots to minimize pesticide loading in watershed systems.

Hot, humid weather can easily create heat stress and possibly death of the animals. The degree of heat stress is influenced by coat color, cattle weight, animal density, ambient temperature, humidity, solar radiation, and wind speed. Therefore, Zim-AIED recommended the construction of sheds or shade structures in open feedlots, or at least to construct them around shady trees to afford the animals some sun protection.

Livestock farmers were also trained in the safe use of veterinary products, noting the expiration dates as well as proper disposal of empty containers through incineration and disposal by burial in areas away from human and animal traffic.

**Water.** Efficient and effective water management on dryland and irrigation schemes is extremely important in mitigating adverse climatic changes. Zim-AIED trained farmers in natural resource management techniques to combat the changes in temperature and rainfall patterns and assisted farmers on irrigation schemes to repair and maintain equipment and infrastructure. The focus on irrigation management training to maximize use of water has helped farmers achieve higher yields in crops such as bananas, sugar bean, green mealies, and tomato. This translates into new income that is essential in driving the adaptations needed to withstand the effects of climate change.

Good irrigation practices are essential for soil conservation. After receiving training on good irrigation management practices, farmers realized the importance of soil conservation for increased yields and are using manure mixed with grass litter as mulch to conserve soil moisture. Organic matter improves the soil's moisture content, thus giving crops a better opportunity to survive under hot conditions or prolonged irrigation cycles. Zim-AIED is urging farmers to use surplus maize stover as a source of organic matter.

Farmers on all irrigation schemes in which Zim-AIED was operating received technical assistance on water management, and especially proper land levelling and the three-quarters irrigation rule (the practice of cutting off water flow after it has run three-quarters of the field length to avoid overwatering) for flood irrigation as well as sprinkler selection and sprinkler layout for pumped schemes to reduce over-application of water and tail water run-off.

Most schemes suffer from poor canal maintenance as well as poor drainage due to lack of maintenance of drains at the ends of the fields. Farmers in flood irrigation schemes received training on the importance of canal maintenance and the use of organic matter mulches to minimize undercutting of canal embankments by water from siphons, as well as the importance of cleaning and maintaining end drains so excess water can flow out of the fields to avoid salt build-up.

**Land.** Maintenance of mulch in banana plantations is now more visible with much of it degrading into manure, thereby enabling nutrient cycling into the soil creating a healthy and stable ecosystem with greater protection against erosion. Mulching reduces soil erosion and weed infestation; prevents runoff of fertilizers; reduces moisture loss; and provides an ideal microclimate for the growth of banana feeder roots. Mulching provides organic material for the natural carbon cycle and creates a good environment for earthworms, which are a vital component of maintaining soil health. Mulching technology has also been adopted by farmers in Manicaland for their maize crops.

Banana farmers in all areas have been trained on the use of polypropylene baling twine to prop bananas, a technology that reduces pressure on the environment as farmers do not have to cut down trees that are traditionally used as props. String propping has been well-adopted by farmers and has helped to avert losses due to fallen bunches.

Continuous rainfall activity in Manicaland during December 2014 presented challenges including excessive leaching of nutrients, erosion, and waterlogging in some cases. Although farmers in all dryland areas understand the importance of contour ridges, many farmers are not maintaining them. Also in many cases, contour ridges are not properly surveyed. Consequently, some of the contour ridges have burst and require maintenance. Zim-AIED provided affected farmers technical assistance on the importance of maintaining contours and rectifying erosion problems. Zim-AIED has engaged

AGRITEX to assist in promoting the practice through competitions and field days, where proper maintenance of contours is a criterion for selecting the winners.

**Environment Monitoring and Mitigation Plan (EMMP).** During FY2015, a total of 73 randomly selected rural households covering all the Zim-AIED cropping and livestock operational areas were assessed for EMMP compliance. The households were first assessed and given technical assistance on the areas that required addressing in November 2014 and then again in February 2015 to assess progress towards mitigation. The main topics investigated were farm land activities, integrated pest management, safe use of pesticides, fertilizer use, irrigation, livestock and farm facilities.

*Farm land*

A high proportion of assessed farmers practice soil conservation, crop rotations, and conservation tillage practices. The second assessment indicated an improvement in the proportion of farmers practicing soil conservation measures as well as crop rotations, with no change to conservation tillage practices. There was a marginal increase in river bank cultivation possibly as a result of the drought in the latter part of the rainy season as farmers try to recoup something by growing gardens closer to water sources.

The increase in soil conservation practices might be due to Zim-AIED's engagement with AGRITEX to assist in promoting the practice through competitions and field days, where proper maintenance of contours is now a criterion used in selecting participants. Winners of these competitions walk away with prizes ranging from agricultural inputs, farm machinery, and PPE.

**Table 4.1.2: EMMP Assessment of Farm Land Activities**

| Activity | Practicing Assessment 1 (%) | Practicing Assessment 2 (%) | % Point Change |
|---|---|---|---|
| Soil conservation | 82 | 90 | +8 |
| River bank cultivation | 8 | 10 | +2 |
| Conservation tillage | 74 | 74 | 0 |
| Crop rotation | 92 | 95 | +3 |

*Integrated Pest Management (IPM)*

An increase in farmers maintaining scouting records from 23 percent in the first assessment to 51 percent in the second indicates that farmers understand the need to keep accounts of their scouting. From the sample of farmers interviewed, 87 percent highlighted that they practice scouting for pests and diseases.

**Table 4.1.3: EMMP Assessment of IPM Activities**

| Activity | Practicing Assessment 1 (%) | Practicing Assessment 2 (%) | % Point Change |
|---|---|---|---|
| IPM Scouting | 87 | 87 | 0 |
| Scouting records | 23 | 51 | +28 |
| Weeding control | 97 | 100 | +3 |
| Cleared zones around fields | 77 | 85 | +8 |

*Safe use of pesticides*

An improvement was noted in most parameters related to safe use of pesticides, showing that farmers are implementing the GAPs learned in training sessions. Of significance are maintenance of up-to-date spraying records, correct disposal of pesticide containers, proper storage of pesticides, and proper maintenance of spraying equipment.

While 95 percent of respondents used pesticides, only 67 percent used protective clothing. In most cases the protective clothing is not full gear. Cost and unavailability of equipment were cited as the major reasons. The program liaised with local dealers to stockpile protective clothing and continued to urge farmers to utilize service providers trained by the program, as well as to pool their resources collectively to acquire more expensive equipment like masks and breathers.

However, 90 percent of farmers use PERSUAP compliant chemicals. The program also liaised with local agrodealers near program areas to stockpile chemicals recommended by the field teams so that they would be available for farmers to purchase.

**Table 4.1.4: EMMP Assessment of Safe Use of Pesticides**

| Activity | Practicing Assessment 1 (%) | Practicing Assessment 2 (%) | % Point Change |
|---|---|---|---|
| Use of pesticides | 95 | 95 | 0 |
| Spray equipment maintained | 67 | 90 | +23 |
| Farmer calibrate equipment | 64 | 77 | +13 |
| Spray records up to date | 28 | 54 | +26 |
| Pesticides locked container | 64 | 79 | +15 |
| Use of PPE | 59 | 67 | +8 |
| Correct disposal pesticide containers | 64 | 90 | +26 |
| Pesticide used PERSUAP complaint | 85 | 90 | +5 |
| Pesticides well-labelled | 85 | 92 | +7 |

*Fertilizer program*

Use of organic fertilizer is on the rise in all areas. Organic fertilizers come in different forms depending on local availability of the resource. Ninety-seven percent of the farmers use at least one form of organic fertilizer in combination with inorganic fertilizers. On most irrigation schemes, Zim-AIED promoted the use of organic materials (stover, manure, and mulch) as well as minimum tillage to improve soil moisture conservation and minimize sheet erosion. Farmers running feedlots were being encouraged to use the manure in their fields to reduce their demand for inorganic fertilizer.

**Table 4.1.5: EMMP Assessment of Fertilizer Program**

| Activity | Practicing Assessment 1 (%) | Practicing Assessment 2 (%) | % Point Change |
|---|---|---|---|
| Use of organic material-composts/manure | 95 | 97 | +2 |
| Safe storage of fertilizers | 85 | 90 | +5 |

*Irrigation (application to irrigation schemes only)*

Interestingly, waterlogging conditions have declined, indicating that farmers are paying attention to proper land levelling and following drainage and water application guidelines as advised. Farmers on most irrigation schemes received technical assistance on water management with emphasis on proper land levelling and the three-quarters irrigation rule for flood irrigation as well as sprinkler selection and sprinkler layout for pumped schemes to reduce over application of water and tail water runoff.

There was also a marked increase in farmers reporting the existence of an operations and maintenance fund. Schemes running well-resourced operations and maintenance funds have kept up with timely payment of utility bills and repairs to equipment, reducing downtime and increasing productivity.

**Table 4.1.6: EMMP Assessment on Irrigation Schemes**

| Activity | Practicing Assessment 1 (%) | Practicing Assessment 2 (%) | % Point Change |
|---|---|---|---|
| Irrigation equipment well maintained | 26 | 38 | +13 |
| Farmer checks soil moisture | 33 | 44 | +10 |
| Rain gauge present or access to rainfall figures | 33 | 44 | +10 |
| Water conservation measures taken | 44 | 46 | +2 |
| Delivery canals well-maintained | 10 | 15 | +5 |
| Drainage canals well-maintained | 15 | 18 | +3 |
| Signs of waterlogging | 18 | 10 | -8 |
| Algal blooms in water source | 3 | 38 | +35 |
| Operations and maintenance fund | 28 | 36 | +8 |
| If water source is a well, protected from contamination | 23 | 21 | -2 |

*Livestock*

Commercializing the smallholder farmer livestock herds requires adoption of good animal husbandry practices such as keeping animal records on routine practices such as dosing and vaccinations; and using dips and chemical remedies to control some of the routine diseases and pests. Even though the percentages remain low, 50 percent of farmers dip their own animals, thus controlling ticks responsible for a number of livestock diseases.

**Table 4.1.7: EMMP Assessment of Livestock Activities**

| Activity | Practicing Assessment 1 (%) | Practicing Assessment 2 (%) | % Point Change |
|---|---|---|---|
| Farmer use dips/chemical remedies | 50 | 50 | 0 |
| Spraying dosing and vaccination records up to date | 12 | 26 | +14 |
| Chemical equipment locked in labelled containers | 24 | 32 | +8 |
| Farmer disposes chemical containers, plastic, injections correctly | 47 | 50 | +3 |
| Farmer has incinerator | 29 | 35 | +6 |
| Pesticides PERSUAP complaint | 50 | 50 | 0 |

*Handling Facilities*

Water and sanitation need improvement as indicated in the responses. Increasing the farmers' incomes and education will go a long way in mitigating these issues.

**Table 4.1.8: EMMP Assessment of Handling Facilities**

| Activity | Practicing Assessment 1 (%) | Practicing Assessment 2 (%) | % Point Change |
|---|---|---|---|
| Separate access to water for humans and animals | 41 | 41 | 0 |
| Area around water source degraded | 15 | 12 | -3 |
| Toilets have adequate running water | 9 | 12 | +3 |
| Adequate waste handling facilities | 44 | 50 | +6 |

# 5. GENDER

*GNDR 1: Number of lead farmers in assisted programs*

*GNDR 2: Proportion of female participants in USG-assisted programs designed to increase access to productive economic resources.*

*GNDR 3: Number of project participants in relevant leadership positions*

*GNDR 4: Proportion of target populations reporting increased agreement with the concept that males and females should have access to social, economic, and political opportunities.*

*GNDR 5: Number of farmers engaged in contract farming*

Throughout its implementation, Zim-AIED made great strides in providing innovative ways to enable women and youth in agriculture to reach their full potential, which is demonstrated in the close achievement of all five gender targets. The Zim-AIED strategy to continually raise awareness of gender-related issues with minimal adverse reaction among Zim-AIED communities has paid dividends.

The program actively engaged farmers through its Farming as a Family Business training, which promoted female and youth participation in all aspects of agricultural production and marketing. Not only does this training address many of the gender-related topics in a format acceptable to the whole community, but it also addresses inefficiencies in the smallholder sector through the commercialization of farms. Zim-AIED recognizes each community's uniqueness and culture in addressing gender disparities and looked for every opportunity to increase gender awareness through a variety of practical initiatives:

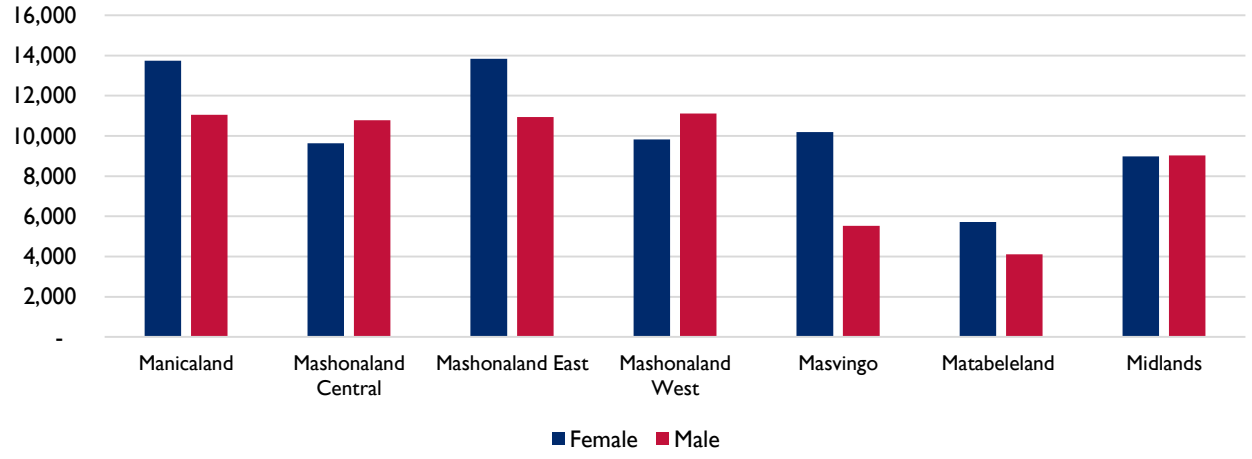
- Discussing and promoting the gender message at all platforms where farmers meet.
- Encouraging marginalized groups to actively participate at trainings and workshops, which includes deliberately extending invitations to these groups to participate at planned meetings.
- Engaging with influential leaders and opinion leaders in communities.
- Encouraging women to demystify gender discrimination through poetry, songs, and drama primarily at large public gatherings like field days.
- Profiling successful women and young leaders on radio shows like Star FM and newspaper articles country wide to encourage others to actively participate in agricultural initiatives.
- Disseminating success stories to key partners and hosting the Women in Agribusiness conference.

Although cultural change is often slow, Zim-AIED has observed some significant changes in attitude even among the most conservative communities and farmer groups. There has gradually been an overall acceptance of farming as a family business, meaning that even those family members who were previously on the periphery of decision making have now been incorporated into the family business. In an endeavor to circumvent challenges of illiteracy and semi literacy, secondary school children have been invited to attend trainings particularly where calculations and recordkeeping aspects are being discussed. The whole family is therefore being empowered with technical and business skills. Women have started seeing themselves as active participants in meetings and realize they have a role to play in the economic development of their families.

## 5.1 GENDER EMPOWERMENT

Over the LOP, Zim-AIED assisted 173,768 unique beneficiaries across the country, of which 50 percent (86,725) were women and 12.8 percent were youth under 29 years of age. The beneficiaries were exposed to new technologies and gained increased knowledge in all aspects of farming including GAPs, water management, safe use of pesticides, marketing, household budgeting, and leadership skills. The overall percentage of female participants in Zim-AIED training was 53 percent. Of the total number of farmers receiving production contracts, 45 percent were women. This is an excellent achievement which demonstrates perseverance in promoting equal opportunities for both men and women.

**Figure 5.1: LOP Trainees by Gender and Location**




Women and youth participating in farmer groups appreciated the benefits of growing support and relationships with input suppliers and buyers; reduction in procurement costs for inputs through bulk purchases; and improved productivity using these inputs. Participation in the input groups has

significantly contributed to increased household year-round food security. Some key results of Zim-AIED's gender empowerment initiatives are:

- Women formed the majority of buyers of fertilizers in input procurement groups and were consistently recognized in field days, often winning the top prizes in these areas.
- The increasing dominance of women in procuring inputs indicates that female farmers participating in Zim-AIED input groups are now able to raise enough money. In addition, it shows a great shift in the perception of men as the sole financial manager for all transactions and instead placing greater trust in women.
- Overall acceptance of Farming as a Family Business with increased attendance of women and youth especially during the school holidays. The program recorded more than 20 percent of the training participants as families in areas like Honde Valley. In the previous trainings, one person would always attend but this has changed as family members either come together or take turns. The whole family is therefore being empowered with technical and business skills.
- Women have started seeing themselves as active participants in meetings and realize they have a role to play in the economic development of their families. At a contract farming meeting with Agribank, at Taona and Chibuwe irrigation schemes in Chipinge district, women asked most (87 percent) of the questions. This goes to show how women are now actively engaging in debates and discourses that shape their lives.

## 5.2 LEADERSHIP

Zim-AIED promotes leadership programs that help women gain ownership and management of small- and medium-sized enterprises, producer and trade associations, and help them to participate in marketing. Enhancing the capacity of women to participate in and lead key organizations not only ensures rural women are represented and have a voice in key decisions, but also results in more widely-shared benefits.

Of the 2,037 lead farmers registered in all Zim-AIED operational areas, 49 percent were women. The impact of women in leadership combined with support through gender training is critical to spearheading Zim-AIED's gender initiatives in the rural areas. The total number of program participants in relevant leadership positions is 1,456, of which 34 percent are female.

- An increase in women taking up influential positions in farmers' groups and IMCs has been noted. In Matabeleland North and South, the proportion of women in leadership positions increased to 60 percent. A similar increase in leadership positions was noted among youth, who now constitute 42 percent of the members, up from 14 percent.
- Once elected to influential positions, women have proven to be excellent leaders, purposefully spearheading development both inside and outside their groups. Notable among these emerging leaders is Jane Mukupe who is the Chairman for the Murara banana group in Honde Valley. Mukupe is so successful that she is now regarded as the epitome of a successful woman in her community. She is now an employer and an investor as she is investing in real estate by building a residential house at Hauna, the local growth point.
- Some Zim-AIED trained groups have adopted quota systems to address gender imbalances in leadership positions. For example, Fanisoni irrigation scheme adopted a quota system to ensure equal representation of males and females on the scheme's four sub-committees. Female farmers in Honde Valley continue to lobby for a greater level of influence, which has resulted in all farmer groups working with Zim-AIED revising their constitutions to include a statement recommending that women and youth should be given equal opportunity for group leadership positions.

## 5.3 ACCESS TO SOCIAL, ECONOMIC, AND POLITICAL OPPORTUNITIES

Zim-AIED noted that there have been some significant changes in men's perceptions on women's role in rural agricultural enterprises. The men, who are the traditional gatekeepers of family customs, are

creating space for women to engage in all aspects of agricultural operations. Zim-AIED also hosted a highly successful one-day Women in Agriculture workshop in 2013 in partnership with the Zimbabwe Agricultural Competitiveness Program where 100 people attended (75 percent women) from all over the country. The impact of this workshop has continued to be felt in operational areas as illustrated in some of the points listed below.

- In Mutema and Chibuwe, among the 441 contracted banana farmers, women opened 232 accounts when the loan mechanism transitioned to CABS. The original contracted number of farmers with Matanuska only registered 180 women farmers. These numbers indicate that 19.9 percent of the men who originally signed up for the banana project have delegated the control of the financial transactions to their wives, giving women greater control of household funds. Another example is at Dambanda banana producers group in Honde Valley, 22 out of 30 farmers now send their wives to collect the cash generated from banana sales. Until recently the handling of cash had been a male-dominated activity.
- Increasingly, farmers are buying polythene pipes for watering their banana plantations in Honde Valley with support from Virl and Agribank who are providing the capital required. Much of the irrigation had been carried out by women and children using buckets; this initiative reduces the labor burden on women and increases their productivity.
- Women have become more influential in their communities often swaying opinion as they have increased credibility due to their achievements. Women such as Rose Tsanga from Mutema, were instrumental in gaining overall group acceptance of the new CABS financing model.
- Weeding is one of the most laborious farm operations that tie up family labor for most of the season. Often women and children, who are normally assigned to this task, are unable to keep up, leaving some crops infested with weeds that greatly reduce potential yields. Further, this task is all-consuming during the rains at the expense of other income-generating activities. Zim-AIED has recorded a 35 percent adoption of herbicides in Zim-AIED targeted areas.
- Chipo irrigation scheme have finally signed off on their constitution; Zim-AIED's BDS team provided significant support during the drafting process. The constitution addressed gender disparity by influencing all plot holders to co-own their 0.5-hectare irrigation plots with their wives as this will prevent women being removed from the plots should their husbands die. The ward councilor, Mrs. Mwenye, has stated that she would also like to replicate the same model in Chitora 1, 2 and 3 as well as Nyaitenga to avoid a myriad of inheritance-related problems upon the death of the husband who is the registered plot holder.
- As a result of Zim-AIED initiatives to economically empower women through the formation of input procurement groups and partnering with microfinance institutions, women are now able to purchase inputs on their own. Greater access to inputs enables women to maximize their returns and gives them more economic independence so that they can diversify their operations and invest in other enterprises and assets.
- Moses Chimbwanda, a successful horticulture farmer, now includes every member of the family as part of the decision-making process on his farm, integrating the lessons from Farming as a Family business trainings taught by Zim-AIED. He now delegates hiring and payment of field laborers to his wife. Delegation of duties to other members, as opposed to centralized management by the household head, has a lot of positive spin-offs, including increased efficiency and empowerment.
- At Chitora irrigation scheme, Juliet Fata purchased a car after a particularly successful season. The single mother has excelled at her farming activities since joining Zim-AIED in 2011. Through trainings, she honed her business and farming skills, making prudent investments and decisions that ultimately netted her $2,500 from horticultural crops harvested that season.
- In Matabeleland North, five youths under 25 were trained as Agro Service Providers (ASP), and are now providing spraying services to 20 Irish potato farmers at the Lukosi irrigation scheme. They commenced operations on July 15, 2014 and are applying two sprays per week of fungicides and insecticides. Each ASP charges $2 per spraying session per 0.1 hectares and

earns an average of $16 per week. Zim-AIED and AGRITEX collaborated in rolling out a comprehensive training to the youth covering calibration, handling of chemicals, budgeting, and recordkeeping.

- Ten female farmers in Nyanga district set up their own women's group, Riverside, as a result of the encouragement received during the Women in Agriculture workshop. Members of this group were selected as a high priority for loans from Virl Microfinance introduced by AgriTrade. The women had formed their own savings club and had records to prove their transactions over the last four months. This high standard of excellence automatically put them in the spotlight to receive input loans for the coming season.
- Deliberate gender mainstreaming efforts by Zim-AIED led to women farmers in Matabeleland North and South hosting 70 percent of the demonstration plots showcasing good agricultural practices.
- Dates and times for specific training events have been scheduled in such a way that women were able to attend as they did not conflict with other activities such as household chores, child clinic days, and church events.
- In Goromonzi two female farmers from Takunda farmers' group have completed constructing fowl runs to embark on commercial broiler production. Both farmers expect bumper maize crops during the current season as they are part of the pilot group of dryland farmers to receive input loans from Quest Financial Holdings. They will use income from their maize sales and other possible lines of credit from MFIs to support their broiler production projects.
- Again in the Honde Valley, Zim-AIED's partner, FAVCO originally contracted only 29 percent women farmers in banana production, but in later contract arrangements women's participation increased to 46 percent.

## 5.4 ACCESS TO FINANCE AND CREDIT

Over the LOP, significant strides were made to increase women farmers' access to credit. Zim-AIED initially targeted rural agrodealers through AgriTrade-funded partners and began diversifying into direct lending to smallholder farmers in 2013. However, the only AgriTrade-funded partner that was interested in direct lending at this stage was MicroKing. At the time, MicroKing and their holding company faced liquidity challenges and as a result, Zim-AIED partnered with five other non-funded banks and MFI's. Working with these non-USAID funded partners had a greater direct impact on women as 43 percent of the value of the loans was disbursed to women smallholder farmers and 49 percent of the beneficiaries who received input loans were women. This is due to Virl, Agribank, and Quest who dispensed the three highest number of loans (879, 495, and 438 respectively), actively worked with Zim-AIED to encourage women farmers to come forward and participate in their training and apply for loans (Table 5.4.1).

**Table 5.4.1: Direct Lending To Farmers By Gender**

| Gender | Inclusive | | Untu | | Agribank | | Quest | | Virl | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | $ | # | $ | # | $ | # | $ | # | $ | # | $ |
| **Men** | 12 | $6,000 | 59 | $11,552 | 226 | $69,219 | 198 | $44,330 | 507 | $160,684 | **1,002** | **$291,785** |
| **Women** | 2 | $1,000 | 80 | $12,492 | 269 | $69,331 | 240 | $38,940 | 372 | $97,398 | **963** | **$219,161** |
| **Total** | 14 | $7,000 | 139 | $24,044 | 495 | $138,550 | 438 | $83,270 | 879 | $258,082 | **1,965** | **$510,946** |

In the LOP, 963 loans to women worth $219,161 were disbursed by financial partners compared to 1,002 loans to men valued at $291,785. Virl disbursed the highest number and value of loans to women (372 worth $97,398), followed by Agribank at 269 loans to women worth $69,331; Quest at 240 loans worth $38,940; and Untu at 80 loans worth $12,492. Zim-AIED has facilitated this process by providing historical credit information on farmers, ensuring secure markets and providing strong technical support.

Overall, between AgriTrade-funded and non-USAID-funded financial partners, women borrowers accessed 1,507 loans worth $2,323,125 against 2,204 loans valued at $13,520,970 disbursed to male borrowers (Table 5.4.1 and 5.4.2.) The very high percentage of funds disbursed to male borrowers (86 percent) initially made by AgriTrade-funded banks was due to the bulk of clients with CABS and Trust that were provided to large, urban agribusinesses headed up by men. The cumulative percentage by number of women (agrodealers and farmers) loans disbursed reached 40.6 percent of the total portfolio as of May 31, 2015.

**Table 5.4.2: AgriTrade Loans by Gender**

| Gender | CABS | | Trust Bank | | MicroKing | | Total | |
|---|---|---|---|---|---|---|---|---|
| | # | $ | # | $ | # | $ | # | $ |
| **Male** | 19 | $3,372,000 | 80 | $3,579,142 | 1,103 | $6,278,043 | **1,202** | **$13,229,185** |
| **Female** | 1 | $262,500 | 5 | $275,000 | 538 | $1,566,464 | **544** | **$2,103,964** |
| **Total** | 20 | $3,634,500 | 85 | $3,854,142 | 1, 641 | $7,844,507 | **1,746** | **$15,333,149** |

Although more women benefitted from input loans through the direct lending to farmers initiative, the size of these loans was comparatively small. Therefore these input loans contributed little to the overall increase in the aggregate value of women's loans in the AgriTrade portfolio. The microfinance institutions provide an average input loan of $500 per farmer, compared to an average AgriTrade loan size of $8,787 to predominantly male-owned agro-merchant companies. The low value of loans to women under the AgriTrade Fund was also attributed to the fact that the majority of women did not have collateral to borrow large loans, which were strictly required by both CABS and Trust Bank in the form of title deeds. Women also feared to apply for large value loans, preferring to access small loans that were easy to repay.

The success in increasing women's access to finance has been a result of concerted effort in targeting female borrowers through several AgriTrade initiatives and a Women in Agriculture workshop on finding credit solutions for women involved in agricultural businesses. The following are recommendations from the workshop:

- Women should form small, well-managed groups to enable them to access group guarantees.
- Women need to be educated on financial credit through workshops and field days.
- Banks should accept alternative forms of collateral such as performance track records which could be used to indicate credit worthiness as many women do not own cattle.
- Banks and implementing partners should increase awareness of availability of loans by putting advertisements in the press and deliberately targeting women. Advertisements and other marketing collateral should use local languages so that the right message gets to the right people.
- Banks should increase their efficiency on loan disbursement to minimize the number of trips made by women in following up with the banks.

AgriTrade also published a full page advertorial in The Sunday Mail, the country's most widely read weekend newspaper, highlighting partner banks' drive to promote women borrowers as well as the 36-month CAPEX loans available for repeat borrowers. The advertorial included highlights on women who had successfully accessed AgriTrade working capital loans, as well as repeat borrowers who accessed capital investment loans during FY2013. Although there were no statistics to confirm the impact of the article on women's access to AgriTrade information, the three AgriTrade partner banks confirmed an increase in the traffic of applications as well as enquiries on the fund during the same month.

# 6. NETWORKING AND COLLABORATIONS

Zim-AIED worked closely with other donor-funded projects such as the Enhancing Nutrition, Stepping Up Resilience and Enterprise (ENSURE) program, AMALIMA, and the Zimbabwe Agricultural Competitiveness Program (Zim-ACP). During FY2014, Zim-AIED and ENSURE proposed a joint implementation of irrigation interventions in Nhedziwa and Mutema-Chibuwe irrigation schemes in Manicaland. Zim-AIED provided technical support for canal construction on the ENSURE-funded Chibuwe D block extension. To avoid parallel trainings that would confuse smallholder farmers, Zim-AIED collaborated with AMALIMA to coordinate training events at Moza and Makwe irrigation schemes in Matabeleland South.

Over the life of the program, Zim-AIED participated at events and meetings in collaboration with other donor-funded projects to advance the program's goals. One example was a joint meeting held in 2011 with the United Nations World Food Program (WFP) and the Food for Peace team to explore ways in which AgriTrade borrowers could supply grain to 24,000 households scheduled to receive cash vouchers between January and March 2012.

In 2014, Zim-AIED participated at an event organized by Zim-ACP in partnership with the Horticultural Promotion Council (HPC). The program contributed to the event through sharing experiences and lessons learned in horticultural production.

Later in 2013, WFP partnered with Zim-AIED and GrainPro Inc. to procure agricultural products and hermetic storage technologies capable of storing significant quantities of grains at smallholder locations without the use of pesticides. This development came as a result of WFP's interest to procure 800 tons of grain and 120 tons of sugar beans and cowpea from Zim-AIED farmer groups. WFP procured seven hermetic cocoons from GrainPro and supplied them to smallholder farmers

identified on Zim-AIED agribusiness hubs. Zim-AIED identified the beneficiary farmers with surplus grain in the hubs, and monitored the performance of the cocoons in conjunction with AGRITEX. GrainPro, through WFP, provided training on the use and maintenance of the cocoons. Eight smallholder farmers in Gokwe South and five in Hurungwe benefitted by storing various quantities (1 to 10 tons) of grain in these cocoons. Some of the farmers have now sold their grain at improved prices of $390 per ton to National Foods and the Grain Marketing Board. However about 75 percent of the grain is still in storage with complete protection from pests.

Other major organizations, initiatives, and donor-funded projects with which Zim-AIED worked closely included the Zimbabwe Microfinance Wholesale Facility (ZMWF), Food and Agriculture Organization (FAO), Agricultural Partnership Trust (APT), Smallholder Micro-Irrigation Development Support Programme (SMIDSP), and International Rescue Committee (IRC).

In FY2014, Zim-AIED coordinated with ZMWF to facilitate its microfinance institutions' access to finance opportunities with Zim-AIED-supported smallholder farmers. This collaboration resulted in a dramatic increase in direct lending to smallholder farmers by microfinance institutions such as Virl Financial Services, Quest, Untu, and others.

Collaborative efforts with other USAID- and non-USAID-funded projects helped Zim-AIED to execute its core mandates and add value to the positive impacts experienced by smallholder beneficiaries.

# 7. LESSONS LEARNED

The main lessons learned during program implementation and mitigation steps taken are listed below.

- Separate, written and signed protocols with provincial and district authorities were essential to implement Zim-AIED activities on the ground, even though an MOU had been agreed with MAMID. Equally important was the provision of regular reporting materials to district authorities.
- Working in collaboration with AGRITEX, Livestock Production and Development, and Veterinary Services pays more positive results as most smallholder farmers trust the government officers whom they know and have worked with previously. Once the government workers show buy-in, the program implementation and farmer mobilization becomes easy as they help bring awareness to farmers and other stakeholders about the program.
- Conditions in Zimbabwe do not allow for successful commercial production of horticultural crops outside of irrigation schemes or other areas where water is available year round. Selected schemes were provided with intensive technical support to create whole-scheme business plans and step up production of higher-value crops and act as hubs for surrounding rain-fed farmers.
- Irrigation schemes provide a potential competitive advantage for thousands of smallholders, but they are misunderstood. No attempt to rehabilitate schemes or improve management can be successful until growers on schemes agree to and start implementing marketing and business plans that treat the scheme as a single commercial unit.

- Direct lending to maize farmers on irrigation schemes combined with the right seed technology and implementation of appropriate GAPs can make maize production a profitable enterprise for smallholder farmers on irrigation schemes.
- Sizeable demonstration plots properly laid out have a huge visual impact and can educate more farmers without much effort even well beyond life of the program. For example banana farmers in Chibuwe and Rusitu Valley still visit demonstration plots established years ago.
- Increasing farmers' incomes and viability is the best strategy to lure financial institutions into communities. Other financial institutions such as Microplan, ZIMBANK, and CABS have courted Zim-AIED partners to access growers for direct lending. Virl Financial Services has progressed further by opening an agent's office at Hauna.
- High-value crops make it easier for smallholder farmers to develop farm infrastructure that increase the overall productivity of their farms. Although Honde Valley experienced a midseason drought in FY2014/15, a number of farmers irrigated their maize crop using irrigation systems established for bananas. Some farmers now have plans in place to produce an offseason irrigated maize crop to diversify their income sources.
- Increased production coupled with improved market visibility can increase competition among buyers, and lead to increased clearing prices and quantities, leading to growth in the market and greater efficiency. Prior to Zim-AIED's interventions, annual supply surpluses in January and February resulted in bananas being left to rot in the fields. Now, however, buyers compete strongly for the crop in January and February. Zim-AIED activities in Honde Valley have increased banana production tenfold, yet gluts in January and February have not been evident as demand for good quality bananas and prices have remained strong.
- Pen feeding is one way of consolidating cattle production, sales, and access to lucrative markets by the smallholder sector. Farmers are able to plan and target a specific market with a specific product. With this consolidation, smallholder livestock farmers have greater opportunity to sell directly to these markets and avoid receiving the discounted rates offered by aggregators and other middlemen along the value chain, who typically buy the cattle ungraded on a live weight basis.
- Fodder production needs to be an integral part of any smallholder livestock producer as it is the first line of defense against drought. Velvet bean is one fodder crop that has shown great potential in this respect. While all other crops, including sorghum and pearl millet were wilting in Matabeleland North, velvet bean grew vigorously and benefited from the later rains in April 2015. Farmers in Nkayi yielded between 6 and 10 tons per hectare of velvet bean hay.
- An all-inclusive herd improvement program (fully fledged AI program, bulls, and technical expertise) is long overdue in rural communities and longer-term (more than five years) programs are required.
- In commercializing smallholder irrigation schemes, IMCs, farmers, and utility suppliers (e.g. ZINWA) engage in regular constructive dialogue as equal partners.
- Recoverable grants for viable but not bankable projects can have a good developmental impact but recovery rates are low. The low rate of recovery needs to be costed and budgeted from the outset if this mechanism is used in the future.
- Contract farming is not always the best option for smallholder growers. It is necessary for non-food crops such as Tabasco chili for which there are few buyers, but difficult for growers and buyers to comply with the terms of the contract for major food crops where there are many cash buyers.
- Provision of inputs must be de-linked from contract farming. The emphasis should be on making inputs available to all farmers and training farmers in the cost benefit of buying quality inputs. Production credit lent directly to farmers to fund purchase of inputs also needs to be increased with or without contracting.

- The active involvement of MFI staff in loan distribution, monitoring, and recoveries is essential for expanding direct lending among smallholder farmers as it ensures successful repayment by farmers.
- Group lending is a functional and practical way to lend effectively to smallholder farmers provided that expectations are fully discussed with the loan recipients prior to the credit.
- Success in achieving gender-related targets requires a multi-pronged approach, which includes discussing and promoting gender messages at all platforms where farmers meet; encouraging marginalized groups to actively participate at training meetings and workshops by deliberately extending invitations; engaging opinion leaders in communities; and using social tools like poetry, songs and drama by women at public gatherings such as field days.

# 8. CHALLENGES

The main strategic challenges facing the development of the agribusiness sector and commercialization of smallholder farmers, as encountered during the implementation of Zim-AIED, are outlined below:

- Delays in getting signed MOUs with local government organizations limited full implementation of Zim-AIED activities in some areas thereby reducing the extent of the program's impact.
- The majority of Zim-AIED beneficiaries are dependent on rain-fed agriculture, which was inadequate in years of bad weather for farmers to realize the full in-field potential of the adopted good agricultural and business practices. Low productivity remains a national problem as inputs remained inaccessible to the majority of smallholders. Zim-AIED worked with financial institutions and agrodealers to increase availability and access to inputs through credit; encouraging the adoption of technology and targeting irrigation schemes for smallholder commercialization.
- Farmers have received free or subsidized inputs for many years. This mindset posed a major challenge to persuade farmers of Zim-AIED's commercial approach to smallholder agriculture.
- High interest rates charged by MFIs reduced the potential number of smallholder borrowers. MFIs need to access cheap funding for on-lending to smallholder farmers in order to reach large numbers. This is particularly important for farmers trying out a new crop, producing a crop with generally lower gross margins, or producing a crop with historically highly variable prices.

- Sustainable agricultural development needs rural investment in a range of agribusiness activities covering production, processing, logistics, and marketing. Although Zim-AIED contributed actively to short-term credit availability, long-term investment funds were almost non-existent and traditional private sector investors were reluctant to invest outside of Harare.
- One of AgriTrade's three partner financial institutions, Trust Bank, faced liquidity challenges and had its license revoked. This reduced rates of disbursements as the $15.33 million disbursed to traders to service smallholder farmers could have been surpassed.
- Lower level AGRITEX officers, at both the district and provincial levels, often emphasize the production of cereal crops in lieu of higher value crops as the primary means to ensure food security. This mindset proved difficult to overcome and needs to be addressed in all regions of implementation to ensure consistent messaging to smallholders.
- A significant amount of training on proper use of personal protective equipment has been conducted by program technicians; however, not many farmers are able to acquire the necessary equipment due to the unavailability and cost of these materials. More effort should be made to encourage the agrodealers to stock these materials in their shops. Increased demand by agrodealers could help to drive down production costs, and bulk purchasing of these items may also allow agrodealers to acquire them at lower prices, making them more affordable for smallholders.
- Although private sector participation has improved at events around the agribusiness hubs, their contributions in terms of farmer prizes at field days is still low. To date, only Windmill and Nico Orgo have made significant contributions.
- Obtaining accurate data on the hectares and number of registered beneficiaries in the irrigation schemes was a major challenge as government officials have conflicting figures and IMCs generally do not maintain up-to-date information. In each scheme, new plots have been added outside of the original design, border plots have increased in size, and numbers of registered plot holders continues to fluctuate. An example of this is at Chibuwe Block A, where each of the original plot holders was allocated 2 hectares but they now have less than 1 hectare each as they have given land to family members.
- Lack of livestock ownership among the majority of irrigators proved challenging to promote feedlot technologies around the irrigation schemes, hence integrating crops and livestock farming.
- Most smallholder dairy farmers are failing to access adequate funding to implement fodder plans that sustain their dairy herds throughout the year. Zim-AIED's BDS and Livestock teams explored ways of linking farmers to credit and input suppliers.
- A large number of the MPA membership is not actively supplying milk to the MCC due to lack of milking cows. Zim-AIED explored ways to improve access of inactive members to AI services using the CBF facilities.
- Massive load shedding continues to plague pumped irrigation schemes with farmers often only having 6 hours at night to irrigate. This causes major challenges especially for female farmers who cannot stay in the fields at night for security reasons and either don't irrigate or leave their taps open causing waterlogging. Even where the fields are manned at night by male farmers, they are often not able to irrigate their whole land in time before wilting occurs.
- Restructuring within the DOI has resulted in all DOI staff on irrigation schemes and up to the district level being absorbed by the AGRITEX and livestock departments. Only skeletal staff remain in office at the provincial level. AGRITEX officers remain on the schemes but have been overloaded with additional duties previously carried out by DOI staff.

# 9. CONCLUSIONS

The design of the Zim-AIED task order and Fintrac's proposal for implementing the program proved to be realistic. After 58 months of implementation, the program achieved its objectives of increasing incomes from agriculture and food security for more than 170,000 farmers. A summary of performance against PMP indicators is shown in Annex 1 and results against the 14 Feed the Future indicators employed to track Zim-AIED's progress are described below. Targets were exceeded for nine of these 14 indicators. The specific reasons for all results that exceeded or fell below target by more than 10 percent are given below:

- **FTF MS 4.5.2-13.** The adjusted LOP target was to benefit a total of 125,000 rural households benefiting. The result achieved was 144,807 households, 16 percent above target.[3] Zim-AIED offered a comprehensive package addressing commercialization of the smallholder farmers. The production response from farmers to greater liquidity at village level and markets offered by new buyers was stronger than expected. Quality of service delivery was high. In addition, the program employed an agribusiness hub approach, which focused and concentrated interventions into priority geographic areas. The hub approach served as a mechanism to increase the interface between the program and more farmers. The central hub not only provided a forum for agronomy training but also an opportunity for farmers to interact and link with input suppliers and output buyers on a weekly basis. The lead farmers around each hub performed similar functions at the micro level. Lead farmers cascaded technical assistance and training by using part of their farms as demonstration plots for farmers in their immediate surroundings.
- **FTF MS 4.5.2-23.** The LOP target was for incremental sales of $59.31 million. The result was $65.7 million, 11 percent above target. This achievement is attributable to the strong increases in agricultural production and productivity and the new market linkages.

[3] The target was reduced from 150,000 to 125,000 due to significantly reduced funding levels.

- **FTF MS 4.5 (16).** Gross margin per unit of land, kilogram, or animal of selected product (crops/animals selected vary by country):
  - **Maize –** The LOP target set, based on FY2014 achievements, was $434 per hectare against a baseline of $37 per hectare. The result was $267 per hectare which is 38 percent below target. This corresponds to a 12 percent and 29 percent decline in market prices and yield from what was achieved in FY2014, respectively. Yield was compromised by prolonged mid-season dry spells that coincided with the grain filling stage of the plant. However, this result still represents a 622 percent increase above the baseline. In addition, the average of 1.61 tons per hectare achieved in FY2015 was 235 percent above the national average of 0.48 tons per hectare.
  - **Paprika –** The LOP target was $2,385 per hectare against a baseline of $416 per hectare. The target was set based on FY2014 achievements. The result was $2,172 per hectare which is 9 percent below target but 422 percent above the baseline.
  - **Banana –** The LOP target was $7,000 per hectare against a baseline of $220 per hectare. The target was set based on FY2014 achievements. The result was $5,880 per hectare, which is 16 percent below target but 2,573 percent above the baseline. This can be primarily attributed to a 12 percent drop in market prices in FY2015.
- **FTF MS 4.5.2-11**. The LOP target for the number of enterprises and organizations receiving assistance was 717. The result was 1,167 enterprises, 63 percent above target. The increase is mainly attributable to the high demand from rural agribusinesses for business training and financial services offered through AgriTrade.
- **FTF MS 4.5.2-38**. The LOP target for the value of new private sector investment in agriculture was $10.03 million. The result was $11.68 million, 16 percent above target. AgriTrade borrowers invested in their facilities to a higher level than projected, especially given the challenging operating environment characterized by political risk, risk of forfeiture of businesses and liquidity challenges.
- **FTF MS 4.5.2-43.** The LOP target for the number of firms operating more profitably due to program assistance was 50. The result was 31 firms, 38 percent below target, mainly due to the macroeconomic environment that constrained consumer demand and increased the cost of doing business. Most firms collaborating with Zim-AIED continued to face challenges including liquidity challenges and low utilization of their installed capacities (O'Enem Meats, FAVCO, Zero One Africa, Prime Seeds, Agriseeds), which reduced their ability to cover operational and overhead costs. Most have been operating at breakeven levels. This trend is reflective of the general performance of businesses in the economy. Plant utilization levels dropped from 40 percent in 2012 to 30 percent in FY2013 according to the report by the Confederation of Zimbabwe Industries. In the most recent reporting period, 19 of 50 ZSE-listed non-financial firms incurred losses. In addition, unreliable power and water supply added to the cost of doing business.
- **FTF MS 4.5-2.** The LOP target for number of jobs created was 11,200. The result was 1,609 full-time job equivalents, 85 percent below target. Job creation has been minimal within the wider economic environment due to a high degree of political and economic uncertainty. Sustained on-farm job creation by smallholder farmers is also limited. Generally, smallholders are only able to generate on-farm employment opportunities for non-family members for a month or less. In setting the targets, Zim-AIED had assumed that household beneficiaries would employ a full-time farmhand to assist the household in looking after livestock. Smallholders hire labor for cropping operations, however, most on-farm laborer jobs last for five days.
- **FTF MS 4.5.2-2 and FTF MS 4.2.2-5.** The LOP target for the number of hectares under improved technologies or management practices and the corresponding number of farmers were 74,147 hectares and 105,000 farmers, respectively, for both new and continuing farmers. The program achieved 114,064 hectares and 106,472 farmers, 53.8 percent and 1 percent above target, respectively. The high uptake was around the

agribusiness hubs, where demonstration plots run by lead farmers were set up to showcase good agricultural practices. Zim-AIED implemented these activities around the hubs for at least two to three consecutive seasons.

- **FTF MS 4.5.2-7.** The LOP target for the number of farmers receiving short-term agricultural productivity training was 181,496. The result was 172,509 farmers, 5 percent below target.
- **FTF MS 4.5.2-42.** The LOP target for the number of enterprises and organizations receiving assistance was 717. The result was 1,167 enterprises, 63 percent above target due to the high demand from rural agribusinesses for business training.
- **FTF MS 4.5.2-29.** The LOP target for value of agricultural and rural loans disbursed was $28.50 million. The result was $16.30 million, which is 43 percent below target. Even though it was below target, the result was still 1,959 percent above the baseline loan figure, which is a significant improvement. Contributing factors to the underachievement include:
    - Availability of US government funding under the AgriTrade loan facility to the three participating banks (Micro King, CABS and Trust Bank) reduced by 62 percent by the end of FY2014 – from $2,071,516 on October 1, 2013 to $771,000 by September 30, 2014.
    - Trust Bank had its license revoked in 2012, ending all future lending possibilities.
    - Zimbabwe's economic environment faces ongoing liquidity challenges that adversely affect investment in rural areas, particularly in agriculture.
- **FTF MS 4.5.2-37.** The LOP target was for 127,018 MSMEs to receive training. The result was 173,329 MSMEs, 36 percent above target due to the greater than anticipated demand by MSMEs (particularly smallholder farmers) for technical assistance toward commercialization.
- **FTF MS 01.** The LOP target for the estimated number and percent of FTF beneficiary households with 5 hectares or less of arable land or equivalent units of livestock was 115,000 households, representing 92 percent of all program-supported households. The program achieved 95 percent of its beneficiary households being classified as smallholders.

# ANNEX 1: PERFORMANCE INDICATOR SUMMARY TABLE

| # | Indicator | Source | Unit | Baseline | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual (FY11-FY15) |
| 1 | # of rural HHs benefiting from USG assistance | FTF 4.5.2-13 | New (HH) | - | 22,038 | 22,038 | 33,000 | 50,793 | 34,000 | 49,992 | 15,000 | 14,064 | 3,500 | 7,920 | 125,000 | 144,807 |
| | | | Continuing (HH) | - | - | - | 22,038 | 22,038 | 72,831 | 6,877 | 40,000 | 12,210 | 5,000 | 7,809 | | |
| 2 | Net income per HH from target agricultural products | Custom (AIED 1) | US$ | 483 | - | - | 966 | 835 | 1,200 | 1,062 | 1,300 | 1,725 | 1,800 | 1,162 | 1,800 | 1,162 |
| 3 | Value of incremental sales attributed to FTF | FTF 4.5.2-23 | **Total sales (US$)** | **4,509,935** | **2,410,500** | **2,410,500** | **67,150,000** | **67,150,000** | **36,679,308** | **51,196,270** | **65,067,400** | **91,705,962** | **94,991,429** | **105,922,332** | **266,298,637** | **318,385,064** |
| | | | Actual sales – Banana (US$) | 28,249 | 500 | 500 | 3,815,000 | 3,815,000 | 6,000,000 | 5,526,757 | 9,000,000 | 13,072,020 | 14,527,830 | 12,180,120 | 33,343,330 | 34,594,397 |
| | | | Actual sales – Paprika (US$) | 1,130,267 | 1,580,000 | 1,580,000 | 4,488,000 | 4,488,000 | 5,000,000 | 910,855 | 1,125,000 | 1,812,085 | 1,812,085 | 1,918,743 | 14,005,085 | 10,709,683 |
| | | | Actual sales – Maize (US$) | 2,742,980 | 830,000 | 830,000 | 8,230,000 | 8,230,000 | 13,500,000 | 25,086,222 | 30,000,000 | 35,964,160 | 37,194,077 | 32,130,088 | 89,754,077 | 102,240,470 |
| | | | Actual sales – Sugar Beans (US$) | 63,195 | - | - | 2,940,000 | 2,940,000 | 2,318,400 | 2,934,162 | 3,666,000 | 11,301,578 | 11,301,578 | 15,358,393 | 20,225,978 | 32,534,133 |
| | | | Actual sales – Bird's eye (US$) | 40 | - | - | - | - | 36,000 | 59,930 | 208,000 | 252,570 | 264,416 | 273,344 | 508,416 | 585,844 |
| | | | Actual sales – Cabbage (US$) | 1,392 | - | - | - | - | 22,500 | 339,057 | 600,000 | 156,529 | 158,797 | 211,246 | 781,297 | 706,832 |
| | | | Actual sales – Chili Pepper (US$) | 750 | - | - | - | - | 187,500 | 151,630 | 240,000 | 335,954 | 358,616 | 708,641 | 786,116 | 1,196,225 |
| | | | Actual sales – Cow Peas (US$) | 6,265 | - | - | - | - | 76,800 | 93,516 | 28,000 | 249,259 | 242,994 | 42,718 | 347,794 | 385,493 |
| | | | Actual sales – Groundnuts (US$) | 28,420 | - | - | 1,480,000 | 1,480,000 | 1,224,400 | 1,013,842 | 1,547,000 | 2,398,976 | 2,398,976 | 5,019,845 | 6,650,376 | 9,912,663 |
| | | | Actual sales – Butternuts (US$) | 2,025 | - | - | - | - | 30,000 | 257,090 | 324,000 | 131,924 | 131,924 | 256,251 | 485,924 | 645,265 |
| | | | Actual Sales – Fine Beans (US$) | 9 | - | - | - | - | 3,200 | 5,415 | 204,800 | 30,733 | 30,733 | 13,869 | 238,733 | 50,017 |
| | | | Actual sales – Peppers (Cherry) | 12 | - | - | - | - | 12,000 | 17,000 | 44,000 | 11,520 | 11,520 | - | 67,520 | 28,520 |

| # | Indicator | Source | Unit | Baseline | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual (FY11-FY15) |
| | | | (US$) | | | | | | | | | | | | | |
| | | | Actual sales – Potatoes (US$) | 5,441 | - | - | - | - | 80,000 | 603,000 | 534,600 | 36,882 | 36,882 | 164,277 | 651,482 | 804,159 |
| | | | Actual sales – Soybeans(US$) | 2,888 | - | - | - | - | 25,000 | 65,364 | 154,000 | 1,637,306 | 1,637,306 | 1,449,126 | 1,816,306 | 3,151,796 |
| | | | Actual sales – Sweet Potatoes (US$) | 809 | - | - | 2,120,000 | 2,120,000 | 224,000 | 1,029,013 | 1,890,000 | 6,046,646 | 6,547,506 | 2,828,557 | 10,781,506 | 12,024,216 |
| | | | Actual sales – Tomatoes (US$) | 423,705 | - | - | - | - | 675,000 | 2,670,153 | 3,502,000 | 1,636,627 | 1,704,996 | 6,869,540 | 5,881,996 | 11,176,320 |
| | | | Actual Sales – Cattle (US$) | 73,488 | - | - | - | - | 7,264,508 | 10,433,264 | 12,000,000 | 16,631,193 | 16,631,193 | 26,497,574 | 35,895,701 | 53,562,031 |
| | | | Actual Sales - Other Products (US$) | - | - | - | 44,077,000 | 44,077,000 | - | - | - | - | - | - | 44,077,000 | 44,077,000 |
| 4 | Volume of production by program beneficiaries | Custom (AIED 2) | **Total volume of production (Tons)** | **24,089** | | | **95,520** | **83,778** | **180,969** | **148,125** | **217,204** | **347,966** | **361,734** | **353,795** | **855,426** | **933,664** |
| | | | Banana (Tons) | 174.00 | | | 1,200 | 6,578 | 24,000 | 19,742 | 30,000 | 54,265 | 59,248 | 57,164 | 114,448 | 137,749 |
| | | | Paprika (Tons) | 72.00 | | | 1,200 | 987 | 1,280 | 737 | 804 | 1,128 | 1,128 | 1,268 | 4,412 | 4,120 |
| | | | Maize (Tons) | 21,600.00 | | | 93,120 | 76,213 | 144,000 | 110,104 | 144,000 | 240,062 | 246,240 | 240,584 | 627,360 | 666,963 |
| | | | Beans (Tons) | 97.30 | | | | | 2,760 | 2,653 | 3,055 | 14,666 | 15,220 | 19,082 | 21,035 | 36,401 |
| | | | Bird's eye (Tons) | 0.05 | | | | | 45 | 72 | 220 | 363 | 380 | 368 | 645 | 803 |
| | | | Cabbage (Tons) | 4.64 | | | | | 75 | 1,950 | 8,000 | 561 | 638 | 781 | 8,713 | 3,292 |
| | | | Chili Pepper (Tons) | 1.50 | | | | | 375 | 257 | 480 | 647 | 690 | 1,409 | 1,545 | 2,313 |
| | | | Cow Peas (Tons) | 21.07 | | | | | 240 | 235 | 100 | 663 | 664 | 110 | 1,004 | 1,008 |
| | | | Groundnuts (Tons) | 256.19 | | | | | 2,040 | 2,831 | 4,420 | 8,326 | 8,601 | 12,682 | 15,061 | 23,839 |
| | | | Butternuts (Tons) | 10.97 | | | | | 60 | 547 | 720 | 253 | 278 | 509 | 1,058 | 1,309 |
| | | | Fine Beans (Tons) | 0.03 | | | | | 4 | 10 | 160 | 18 | 18 | 31 | 182 | 59 |
| | | | Peppers (Cherry) (Tons) | 0.03 | | | | | 30 | 34 | 80 | 37 | 37 | - | 147 | 71 |

| # | Indicator | Source | Unit | Baseline | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual (FY11-FY15) |
| | | | Potatoes (Tons) | 9.52 | | | | | 160 | 900 | 1,080 | 53 | 53 | 277 | 1,293 | 1,230 |
| | | | Soybeans (Tons) | 16.50 | | | | | 100 | 163 | 385 | 4,566 | 4,577 | 3,376 | 5,062 | 8,105 |
| | | | Sweet Potatoes (Tons) | 202.07 | | | | | 2,800 | 3,091 | 4,200 | 20,748 | 22,269 | 9,555 | 29,269 | 33,394 |
| | | | Tomatoes (Tons) | 1,623.00 | | | | | 3,000 | 4,799 | 19,500 | 1,610 | 1,692 | 6,599 | 24,192 | 13,008 |
| 5 | Value of production by program beneficiaries | Custom (AIED 3) | Total Value of production (US$) | **4,810,622** | | | **18,381,600** | **25,715,500** | **43,280,200** | **50,878,811** | **72,554,360** | **128,513,570** | **133,310,255** | **131,362,663** | **267,526,416** | **336,470,544** |
| | | | Banana (US$) | 40,000 | | | 300,000 | 1,578,700 | 6,000,000 | 5,526,757 | 10,000,000 | 14,784,660 | 16,142,033 | 13,841,046 | 32,442,033 | 35,731,163 |
| | | | Paprika (US$) | 80,000 | | | 1,320,000 | 1,272,700 | 1,536,000 | 910,855 | 1,125,060 | 2,108,715 | 2,108,715 | 3,954,863 | 6,089,775 | 8,247,133 |
| | | | Maize (US$) | 3,880,000 | | | 16,761,600 | 22,864,100 | 28,800,000 | 34,422,024 | 43,200,000 | 78,828,150 | 80,856,690 | 69,847,983 | 169,618,290 | 205,962,257 |
| | | | Beans (US$) | 97,309 | | | | | 3,312,000 | 3,210,372 | 3,666,000 | 16,181,325 | 16,792,538 | 21,940,561 | 23,770,538 | 41,332,258 |
| | | | Bird's eye (US$) | 40 | | | | | 36,000 | 59,930 | 208,000 | 252,570 | 264,416 | 273,344 | 508,416 | 585,844 |
| | | | Cabbage (US$) | 1,392 | | | | | 22,500 | 370,500 | 600,000 | 193,601 | 223,209 | 260,797 | 845,709 | 824,898 |
| | | | Chili Pepper (US$) | 750 | | | | | 187,500 | 151,630 | 240,000 | 335,954 | 358,616 | 753,874 | 786,116 | 1,241,458 |
| | | | Cow Peas (US$) | 16,857 | | | | | 192,000 | 113,235 | 35,000 | 331,623 | 331,894 | 56,957 | 558,894 | 501,815 |
| | | | Groundnuts (US$) | 153,714 | | | | | 1,224,000 | 1,393,180 | 2,210,000 | 5,723,936 | 5,912,997 | 11,952,011 | 9,346,997 | 19,069,127 |
| | | | Butternuts (US$) | 5,487 | | | | | 30,000 | 257,090 | 324,000 | 67,321 | 74,067 | 130,740 | 428,067 | 455,151 |
| | | | Fine Beans (US$) | 9 | | | | | 3,200 | 5,415 | 204,800 | 11,312 | 11,332 | 13,869 | 219,332 | 30,596 |
| | | | Peppers (Cherry) (US$) | 12 | | | | | 12,000 | 17,000 | 55,000 | 14,400 | 14,400 | - | 81,400 | 31,400 |
| | | | Potatoes (US$) | 5,045 | | | | | 80,000 | 603,000 | 594,000 | 40,980 | 40,980 | 182,095 | 714,980 | 826,075 |
| | | | Soybeans ($) | 6,601 | | | | | 50,000 | 81,307 | 192,500 | 2,123,460 | 2,128,365 | 1,881,982 | 2,370,865 | 4,086,749 |
| | | | Sweet Potatoes (US$) | 36,372 | | | | | 1,120,000 | 1,046,541 | 2,100,000 | 6,778,201 | 7,275,006 | 3,178,154 | 10,495,006 | 11,002,896 |
| | | | Tomatoes (US$) | 487,034 | | | | | 675,000 | 2,709,975 | 7,800,000 | 737,362 | 774,998 | 3,094,387 | 9,249,998 | 6,541,724 |
| 6 | Area grown per | Custom | Banana (Ha) | 100 | | | 100 | 1,080 | 1,600 | 1,872 | 2,000 | 1,975 | 1,975 | 1,975 | 5,675 | 6,902 |

| # | Indicator | Source | Unit | Baseline | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual (FY11-FY15) |
| | target product | (AIED 4) | Paprika (Ha) | 100 | | | 800 | 700 | 800 | 689 | 536 | 680 | 680 | 791 | 2,816 | 2,860 |
| | | | Maize (Ha) | 16,000 | | | 48,000 | 51,760 | 72,000 | 68,057 | 72,000 | 105,325 | 108,000 | 142,312 | 300,000 | 367,454 |
| | | | Beans (Ha) | 97 | | | | | 2,300 | 2,312 | 2,350 | 12,684 | 12,684 | 16,449 | 17,334 | 31,445 |
| | | | Bird's eye (Ha) | 0 | | | | | 15 | 16 | 55 | 44.73 | 45 | 59 | 115 | 120 |
| | | | Cabbage (Ha) | 3 | | | | | 5 | 75 | 100 | 18 | 18 | 18 | 123 | 112 |
| | | | Chili Pepper (Ha) | 0.02 | | | | | 75 | 75 | 120 | 86.31 | 86 | 105 | 281 | 266 |
| | | | Cow Peas (Ha) | 31 | | | | | 300 | 227 | 100 | 759 | 759 | 378 | 1,159 | 1,364 |
| | | | Groundnuts (Ha) | 246 | | | | | 1,700 | 2,327 | 3,400 | 7,819 | 7,819 | 16,335 | 12,919 | 26,481 |
| | | | Butternuts (Ha) | 2 | | | | | 10 | 60 | 60 | 28 | 28 | 54 | 98 | 142 |
| | | | Fine Beans (Ha) | 0.02 | | | | | 1 | 2 | 25 | 3 | 3 | 5 | 29 | 10 |
| | | | Peppers (Cherry) (Ha) | 0 | | | | | 5 | 6 | 8 | 10 | 10 | - | 23 | 16 |
| | | | Potatoes (Ha) | 4 | | | | | 20 | 60 | 60 | 4 | 4 | 11 | 84 | 75 |
| | | | Soybeans(Ha) | 20 | | | | | 100 | 159 | 350 | 4,087 | 4,087 | 4,934 | 4,537 | 9,180 |
| | | | Sweet Potatoes (Ha) | 121 | | | | | 560 | 655 | 700 | 3,711 | 3,711 | 2,516 | 4,971 | 6,882 |
| | | | Tomatoes (Ha) | 225 | | | | | 250 | 588 | 650 | 169 | 169 | 749 | 1,069 | 1,506 |
| 7 | Average yields per target product | Custom (AIED 5) | Banana (Tons/Ha) | 1.74 | | | 12.00 | 6.11 | 15.00 | 10.55 | 15.00 | 27.48 | 30.00 | 28.94 | 30.00 | 28.94 |
| | | | Paprika (Tons/Ha) | 0.72 | | | 1.50 | 1.41 | 1.60 | 1.07 | 1.50 | 1.66 | 1.66 | 1.60 | 1.66 | 1.60 |
| | | | Maize (Tons/Ha) | 1.35 | | | 1.94 | 1.47 | 2.00 | 1.62 | 2.00 | 2.28 | 2.28 | 1.69 | 2.28 | 1.69 |
| | | | Beans (Tons/Ha) | 1.00 | | | | | 1.20 | 1.15 | 1.30 | 1.16 | 1.20 | 1.16 | 1.20 | 1.16 |
| | | | Bird's eye (Tons/Ha) | 0.50 | | | | | 3.00 | 4.52 | 4.00 | 8.12 | 8.50 | 6.25 | 8.50 | 6.25 |
| | | | Cabbage (Tons/Ha) | 1.82 | | | | | 15.00 | 26.00 | 80.00 | 30.80 | 35.00 | 42.68 | 35.00 | 42.68 |
| | | | Chili Pepper (Tons/Ha) | 1.50 | | | | | 5.00 | 3.42 | 4.00 | 7.49 | 8.00 | 13.42 | 8.00 | 13.42 |
| | | | Cow Peas (Tons/Ha) | 0.69 | | | | | 0.80 | 1.04 | 1.00 | 0.87 | 0.88 | 0.29 | 0.88 | 0.29 |
| | | | Groundnuts (Tons/Ha) | 1.04 | | | | | 1.20 | 1.22 | 1.30 | 1.06 | 1.10 | 0.78 | 1.10 | 0.78 |

| # | Indicator | Source | Unit | Baseline | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual (FY11-FY15) |
| | | | Butternuts (Tons/Ha) | 4.65 | | | | | 6.00 | 9.12 | 12.00 | 9.09 | 10.00 | 9.51 | 10.00 | 9.51 |
| | | | Fine Beans (Tons/Ha) | 3.00 | | | | | 4.00 | 5.00 | 6.40 | 6.19 | 6.20 | 5.74 | 6.20 | 5.74 |
| | | | Peppers (Cherry) (Tons/Ha) | 3.00 | | | | | 6.00 | 5.67 | 10.00 | 3.85 | 3.85 | - | 3.85 | - |
| | | | Potatoes (Tons/Ha) | 2.63 | | | | | 8.00 | 15.00 | 18.00 | 14.24 | 14.24 | 24.73 | 14.24 | 24.73 |
| | | | Soybeans(Tons/Ha) | 0.81 | | | | | 1.00 | 1.03 | 1.10 | 1.12 | 1.12 | 0.68 | 1.12 | 0.68 |
| | | | Sweet Potatoes (Tons/Ha) | 1.67 | | | | | 5.00 | 4.72 | 6.00 | 5.59 | 6.00 | 3.80 | 6.00 | 3.80 |
| | | | Tomatoes (Tons/Ha) | 7.20 | | | | | 12.00 | 8.16 | 30.00 | 9.51 | 10.00 | 8.81 | 10.00 | 8.81 |
| 8 | Gross margin per unit of land, kilogram, or animal of selected product | FTF 4.5.4 | Maize (US$/Ha) | 37 | | | 500 | 225 | 250 | 213 | 250 | 433 | 434 | 267 | 434 | 267 |
| | | | Paprika (US$/Ha) | 416 | | | 900 | 1,235 | 1,500 | 767 | 1,125 | 2,385 | 2,385 | 2,172 | 2,385 | 2,172 |
| | | | Banana(US$/Ha) | 220 | | | 500 | 476 | 1,000 | 1,834 | 3,500 | 6,058 | 7,000 | 5,880 | 7,000 | 5,880 |
| | | | Beans (US$/Ha) | 690 | | | | | 1,040 | 1,046 | 1,130 | 775 | 775 | 920 | 775 | 920 |
| | | | Bird's eye (US$/Ha) | 50 | | | | | 1,500 | 2,946 | 2,220 | 4,303 | 4,570 | 3,758 | 4,570 | 3,758 |
| | | | Cabbage ((US$/Ha) | 173 | | | | | 1,000 | 3,956 | 4,300 | 9,582 | 11,199 | 12,900 | 11,199 | 12,900 |
| | | | Chili Pepper (US$/Ha) | 120 | | | | | 1,700 | 1,303 | 1,300 | 2,796 | 3,058 | 6,325 | 3,058 | 6,325 |
| | | | Cow Peas (US$/Ha) | 502 | | | | | 540 | 397 | 250 | 239 | 240 | 133 | 240 | 133 |
| | | | Groundnuts (US$/Ha) | 361 | | | | | 420 | 460 | 500 | 611 | 635 | 632 | 635 | 632 |
| | | | Butternuts (US$/Ha) | 1,172 | | | | | 1,200 | 3,778 | 4,400 | 1,585 | 1,828 | 1,769 | 1,828 | 1,769 |
| | | | Fine Beans (US$/Ha) | (50) | | | | | 600 | 2,439 | 5,792 | 1,797 | 1,797 | 1,364 | 1,797 | 1,364 |
| | | | Peppers (Cherry)(US$/Ha) | 100 | | | | | 900 | 880 | 3,500 | 823 | 823 | - | 823 | - |
| | | | Potatoes (US$/Ha) | 502 | | | | | 800 | 3,135 | 3,900 | 6,568 | 6,568 | 9,981 | 6,568 | 9,981 |
| | | | Soybeans(US$/Ha) | 36 | | | | | 200 | 415 | 450 | 367 | 368 | 230 | 368 | 230 |
| | | | Sweet Potatoes | 271 | | | | | 1,900 | 1,387 | 2,750 | 1,457 | 1,457 | 901 | 1,457 | 901 |

| # | Indicator | Source | Unit | Baseline | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual (FY11-FY15) |
| | | | (US$/Ha) | | | | | | | | | | | | | |
| | | | Tomatoes (US$/Ha) | 541 | | | | | 1,100 | 3,844 | 4,500 | 3,348 | 3,570 | 3,126 | 3,570 | 3,126 |
| | | | Cattle (US$/Animal) | | | | | | | | 346 | 431 | 431 | 341 | 431 | 341 |
| 9 | # of food security private enterprises (for profit), producers organizations, water users' associations, women's groups, trade and business associations, CBOs receiving USG assistance | FTF 4.5.2-11 | Enterprises Organizations Groups Associations | New | - | 333 | 333 | 114 | 430 | 150 | 342 | 100 61 | 20 | 1 | 717 | 1,167 |
| | | | | Continuing | | | | 333 | 259 | 620 | 634 | 942 973 | 937 | 1,025 | | |
| 10 | # of buyer and market-related firms benefiting directly from interventions | Custom (AIED 9) | Buyers/ Firms | - | 305 | 305 | 1,300 | 679 | 140 | 420 | 120 | 292 | 30 | 21 | 1,895 | 1,717 |
| 11 | Value of new private sector investment in the agriculture sector or food chain leveraged by FTF implementation | FTF 4.5.2-38 | US$ m | - | 2.78 | 2.78 | 4.00 | 6.73 | 2.00 | 1.36 | 1.00 | 0.77 | 0.25 | 0.04 | 10.03 | 11.68 |
| 12 | # of firms (excluding farms) or CSOs engaged in agricultural and food security-related manufacturing and services, now operating more profitably because of USG assistance | FTF 4.5.2-43 | Firms/CSOs | Cumulative - | | | 10 | 14 | 20 | 14 | 15 | 3 | 5 | - | 50 | 31 |
| | | | | Unique | | | | | | | | | | | 42 | 29 |
| 13 | # of jobs attributed to FTF | FTF 4.5-2 | FTE | New - | 155 | 155 | 10,000 | 1,159 | 1,000 | 194 | 35 | 79 | 10 | 22 | 11,200 | 1,609 |

| # | Indicator | Source | Unit | Baseline | | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual (FY11-FY15) |
| | implementation | | | Continuing | | - | - | 155 | - | 1,160 | 1,030 | 1,189 | 1,215 | 1,100 | 1,292 | - | - |
| | | | | Total | | 155 | 155 | 10,155 | 1,159 | 2,160 | 1,224 | 1,224 | 1,294 | 1,110 | 1,314 | 11,200 | 1,609 |
| 14 | # of hectares under improved technologies or management practices as a result of USG assistance | FTF 4.5.2-2 | Ha | New | - | 500 | 500 | 19,500 | 57,589 | 11,202 | 25,379 | 39,945 | 19,074 | 3,000 | 11,522 | 74,147 | 114,064 |
| | | | | Continuing | | | | 500 | 500 | 25,804 | 25,379 | 43,144 | 74,066 | 94,000 | 99,423 | - | - |
| 15 | # of farmers and others who have applied new technologies or management practices as a result of USG assistance | FTF 4.5.2-5 | Individuals | | - | 11,896 | 11,896 | 51,496 | 32,376 | 45,980 | 75,178 | 80,327 | 98,534 | 105,000 | 106,472 | 105,000 | 106,472 |
| 16 | # of individuals who have received USG supported short term agricultural sector productivity or food security training | FTF 4.5.2-7 | Individuals | - | | 11,896 | 11,896 | 39,600 | 58,055 | 60,000 | 54,851 | 60,000 | 28,832 | 10,000 | 18,875 | 181,496 | 172,509 |
| 17 | # of private enterprises, producers organizations, water users' associations, women's groups, trade and business association & CBOs that applied new technologies or management practices as a result of USG assistance | FTF 4.5.2-42 | Enterprises/ Organizations/ Groups/ Associations | New | - | 333 | 333 | 114 | 430 | 150 | 342 | 100 | 61 | 20 | 1 | 717 | 1,167 |
| | | | | Continuing | | | | 333 | 259 | 620 | 634 | 942 | 973 | 937 | 1,025 | | |

| # | Indicator | Source | Unit | Baseline | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual (FY11-FY15) |
| 18 | Value of agricultural and rural loans | FTF 4.5.2-29 | US$ m | 0.79 | 2.50 | 2.50 | 13.00 | 5.38 | 6.00 | 6.02 | 6.50 | 2.14 | 0.50 | 0.23 | 28.50 | 16.30 |
| 19 | # of beneficiaries receiving credit | Custom (AIED 6) | Individuals | 1,002 | 554 | 554 | 1,300 | 10,758 | 12,400 | 6,580 | 3,680 | 4,468 | 2,020 | 2,500 | 19,954 | 24,860 |
| 20 | Value of cost-sharing with alliance partners | Custom (AIED 7) | US$ m | - | 0.41 | 0.41 | 1.00 | 0.71 | 1.00 | 0.13 | 1.00 | 0.34 | 0.10 | 0.24 | 3.51 | 1.83 |
| 21 | # of individuals receiving training in business skills | Custom (AIED 10) | Farmers/ Borrowers | - | 11,896 | 11,896 | 10,000 | 13,756 | 10,000 | 13,245 | 15,000 | 19,854 | 2,500 | 7,374 | 49,396 | 66,125 |
| 22 | # of MSMEs receiving business development services from USG assisted sources | FTF 4.5.2-37 | MSMEs | - | 364 | 364 | 150 | 73,520 | 62,197 | 57,190 | 55,610 | 26,484 | 8,697 | 15,771 | 127,018 | 173,329 |
| 23 | # of individuals receiving training in (NRM) | Custom (AIED 11) | Individuals | - | 5,948 | 5,948 | 5,000 | 14,563 | 20,000 | 16,062 | 20,000 | 8,589 | 3,000 | 3,415 | 53,948 | 48,577 |
| 24 | Number of lead farmers in assisted programs | GNDR 1 | Individuals | - | | | | | 500 | 538 | 850 | 980 | 700 | 519 | 2,060 | 2,037 |
| | | | Females | | | | | | 160 | 216 | 383 | 559 | 350 | 231 | 903 | 1,006 |
| | | | Males | | | | | | 340 | 322 | 467 | 421 | 350 | 288 | 1,157 | 1,031 |
| 25 | Proportion of female participants in USG-assisted programs designed to increase access to productive economic resources | GNDR 2 | Percent | 48% | | | | | 52% | 48% | 55% | 52% | 55% | 45% | 49% | 49% |
| 26 | Number of project participants in relevant leadership positions | GNDR 3 | Percentage Increase of female participants from baseline | 0% | | | | | Baseline | 0% | 5% | -1% | 5% | -1% | 3% | -1% |

| # | Indicator | Source | Unit | Baseline | FY2011 | | FY2012 | | FY2013 | | FY2014 | | FY2015 | | LOP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual (FY11-FY15) |
| 27 | Proportion of target populations reporting increased agreement with the concept that males and females should have access to social, economic, and political opportunities | GNDR 4 | Percent | 79% | | | | | Baseline | 79% | 84% | 86% | 89% | 98% | 89% | 98% |
| 28 | Number of farmers engaged in Contract farming | GNDR 5 | Individuals | Total Farmers | - | 325 | 325 | 10,000 | 10,350 | 12,000 | 6,228 | 3,000 | 3,205 | 1,000 | 1,762 | 26,325 | 21,870 |
| | | | | Females | | 130 | 130 | 4,500 | 4,658 | 6,000 | 2,989 | 1,500 | 1,348 | 500 | 780 | 12,630 | 9,905 |
| | | | | Males | | 195 | 195 | 5,500 | 5,692 | 6,000 | 3,239 | 1,500 | 1,857 | 500 | 982 | 13,695 | 11,965 |
| 29 | Estimated number and percentage of FTF beneficiaries holding 5 hectares or less of arable land or equivalent units of livestock | FTF 01 | Individuals (percentage) | Number | 92% | | | | | 35,000 | 35,000 | 50,600 | 21,887 | 3,450 | 17,931 | 115,000 | 137,567 |
| | | | | Percent | | | | | | 92% | 92% | 92% | 83% | 92% | 95% | 92% | 95% |

# ANNEX 4: IRRIGATION SCHEMES ASSISTED BY ZIM-AIED

| | Schemes Assisted | Scheme Area (ha) | # of ben. | Type of assistance | District | Major crops grown |
|---|---|---|---|---|---|---|
| **Mashonaland East Province** | | | | | | |
| 1 | Chinyika | 18.5 | 36 | Technical support (agronomic and irrigation), BDS training and linkages to markets and input finance | Goromonzi | Horticultural crops |
| 2 | Chipo | 9 | 18 | Technical support (agronomic and irrigation), BDS training and linkages to export horticulture market and input finance. | Mutoko | Horticultural crops, grounduts |
| 3 | Chitora 1, 2 & 3 | 35 | 71 | Technical support (agronomic and irrigation), BDS training and linkages to export horticulture market and input finance. | Mutoko | Horticultural crops, grounduts |
| 4 | Gwiranenzara (Mbomane) | 12 | 24 | Technical support (agronomic and irrigation), BDS training and linkages to markets and input finance | Mutoko | Horticultural crops |
| 5 | Murehwa Wetlands | 11 | 102 | Technical support (agronomic and irrigation), BDS training and linkages to formal and informal markets. | Murehwa | Horticultural crops and birds eye chilies. |
| 6 | Nyaitenga | 13 | 26 | Technical support (agronomic and irrigation), BDS training and linkages to export horticulture market and input finance. | Mutoko | Horticultural crops |
| **Mashonaland Central Province** | | | | | | |
| 7 | Negomo | 355 | 296 | Technical support (agronomic and irrigation), BDS training and linkages to export horticulture markets. | Mazoe | Horticultural crops, maize, green mealies, sugar beans and citrus |
| **Manicaland Province** | | | | | | |
| 8 | Bende | 600 | 300 | Technical support on irrigation (report on potential sites to increase water) | Nyanga | Horticultural crops |
| 9 | Bwerudza | 146 | 308 | Technical support (agronomic and irrigation), BDS training and linkages to formal and informal markets. | Chipinge | Maize and tomatoes. |
| 10 | Chibuwe | 349 | 352 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to formal markets and MFIs. | Chipinge | Bananas, maize, sugar beans groundnuts, horticultural crops and livestock |

| | Schemes Assisted | Scheme Area (ha) | # of ben. | Type of assistance | District | Major crops grown |
|---|---|---|---|---|---|---|
| 11 | Chiduku-Tikwiri | 142 | 284 | Technical support (agronomic and irrigation), BDS training and linkages to export and local markets. | Makoni | Cherry peppers, sugar bean, horticultural crops, wheat and maize |
| 12 | Chipendeke (Mpudzi A & B) | 47 | 47 | Technical support (agronomic and irrigation), BDS training and linkages to export and local markets. | Mutare | Africa Bird's Eye Chilies, maize, groundnuts, sugar beans, horticultural crops |
| 13 | Musikavanhu | 698 | 620 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to local and export markets and MFIs. | Chipinge | Bananas, maize, sugar beans, groundnuts, horticultural crops, paprika and livestock |
| 14 | Mutambara A & B (Nedziwa) | 164 | 250 | Technical support (agronomic, irrigation, NRM), BDS training and linkages to local and export markets and MFIs. | Chimanimani | Maize, sugar beans, horticultural crops and paprika |
| 15 | Mutarazi | 29 | 34 | Technical support (agronomic, irrigation, NRM), BDS training and linkages to formal local markets and MFIs. | Mutasa | Bananas, maize, sugar beans, horticultural crops. |
| 16 | Mutema | 235 | 374 | Technical support (agronomic, irrigation, NRM), BDS training and linkages to local formal markets and MFIs. | Chipinge | Bananas, sugar beans and maize. |
| 17 | Nyamaropa | 519 | 600 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to local and export markets and MFIs. | Nyanga | Maize, wheat, sugar beans, horticultural crops, paprika and livestock |
| 18 | Nyakomba | 430 | 518 | Technical support (agronomic, irrigation), BDS training and linkages to local and export markets and MFIs. | Nyanga | Maize, sugar beans, horticultural crops, paprika and Tabasco chilies |
| 19 | Shinja | 30 | 168 | Technical support (agronomic, irrigation), BDS training and linkages to local formal markets. | Chimanimani | Maize, wheat, sugar beans and horticultural crops |
| 20 | Taona | 253 | 485 | Technical support (agronomic, irrigation, NRM), BDS training and linkages to local formal markets and MFIs. | Chipinge | Maize, wheat, sugar beans and horticultural crops |
| **Matabeleland South Province** | | | | | | |
| 21 | Makwe | 197 | 490 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to formal and informal markets and MFIs. | Gwanda | Maize, wheat, green mealies, sugar beans, horticultural crops, sweet potato and livestock |
| 22 | Masholomushe | 34 | 131 | Technical support (agronomic, irrigation), BDS training and linkages to local formal markets. | Gwanda | Maize, wheat, sugar beans and horticultural crops. |

| | Schemes Assisted | Scheme Area (ha) | # of ben. | Type of assistance | District | Major crops grown |
|---|---|---|---|---|---|---|
| 23 | Moza | 87 | 250 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to formal and informal markets and MFIs. | Bulilima | Maize, wheat, green mealies, sugar beans, horticultural crops, bananas and livestock. |
| 24 | Mzinyathini | 33 | 79 | Technical support (agronomic, irrigation), BDS training and linkages to formal and informal markets. | Umzingwane | Maize, green mealies, wheat, sugar beans, sweet potatoes and horticultural crops. |
| 25 | Silalabuhwa | 443 | 862 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to formal and informal markets and MFIs. | Insiza | Maize, green mealies, wheat, sugar beans, sweet potato, horticultural crops and livestock |
| 26 | Siwaze | 20 | 51 | Technical support (agronomic, irrigation), BDS training and linkages to formal and informal markets. | Insiza | Maize, wheat, sugar beans, sweet potatoes, horticultural crops |
| 27 | Tuli Lushonkwe | 2 (25) | 58 | Technical support (agronomic, irrigation), BDS training and linkages to formal and informal markets. | Gwanda | Maize, green mealies, sugar beans and horticultural crops. |
| **Matabeleland North Province** | | | | | | |
| 28 | Fanisoni | 15 | 55 | Technical support (livestock, agronomic, irrigation), BDS training and linkages to formal and informal markets and MFIs. | Nkayi | Maize, green mealies, sugar beans, horticultural crops and livestock |
| 29 | Lukosi | 28 | 73 | Technical support (livestock, agronomic, irrigation), BDS training and linkages to formal and informal markets and MFIs. | Hwange | Maize, green mealies, bananas, horticultural crops and livestock |
| 30 | Tshongokwe | 24 | 61 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to formal and informal markets and MFIs. | Lupane | Maize, green mealies, sugar beans, horticultural crops and livestock |
| **Midlands Province** | | | | | | |
| 31 | Dufuya/ Madigane wetlands | 19 | 160 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to formal and informal markets. | Gweru | Maize, green mealies, sugar beans, horticultural crops and livestock |
| 32 | Exchange | 169 | 820 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to formal and informal markets and MFIs. | Kwekwe | Maize, green mealies, sugar beans, horticultural crops and livestock |
| 33 | Hama-Mavhaire | 103 | 103 | Technical support (livestock, agronomic, irrigation), BDS training and linkages to formal and informal markets and MFIs. | Chirumhanzu | Maize, green mealies, wheat, sugar beans, groundnuts, horticultural crops, and livestock |

| | Schemes Assisted | Scheme Area (ha) | # of ben. | Type of assistance | District | Major crops grown |
|---|---|---|---|---|---|---|
| 34 | Insukamini | 51 | 170 | Technical support (agronomic, irrigation), BDS training and linkages to formal and informal markets and MFIs. | Gweru | Maize, green mealies, sugar beans, horticultural crops, |
| 35 | Mkoba | 20 | 75 | Technical support (agronomic, irrigation), BDS training and formal market linkages. | Gweru | Maize, sugar beans and horticultural crops. |
| 36 | Ngondoma | 56 | 143 | Technical support (livestock, agronomic, irrigation, NRM), BDS training and linkages to formal and informal markets and MFIs. | Kwekwe | Maize, green mealies, sugar beans, horticultural crops and livestock |
| 37 | Ruchanyu | 27 | 85 | Technical support (agronomic, irrigation), BDS training and linkages to formal and informal markets. | Shurugwi | Maize, sugar beans |
| **Masvingo Province** | | | | | | |
| 38 | Fuve Panganayi | 291 | 346 | Technical support (agronomic, irrigation), BDS training and linkages to formal and informal markets. | Zaka | Maize, rice, groundnuts, sugar beans, horticultural crops and ABE chilies. |
| 39 | Ranga | 51 | 170 | Technical support (agronomic, irrigation), BDS training and linkages to formal and informal markets. | Gutu | Maize, sugar beans, groundnut, sweet potatoes, horticultural crops |
| 40 | Ruti | 84 | 270 | Technical support (agronomic, irrigation) and linkages to formal and informal markets. | Gutu | Sugar beans, maize, green mealies and sweet potatoes |
| 41 | Tshovane | 360 | 120 | Technical support (agronomic, irrigation), BDS training and linkages to formal and informal markets. | Chiredzi | Maize, sugar beans, ABE chilies, groundnuts, horticultural crops. |
| 42 | Zvavahera | 35 | 40 | Repair and maintenance on pumping plant | Gutu | Maize, sugar beans, sweet potatoes, horticultural crops |

# ANNEX 5: NETWORKING, PARTNERS, AND COLLABORATIONS

Partnerships, networking, and collaboration with agribusiness companies was an integral part of Zim-AIED's approach to commercialization of smallholder agriculture and these are described throughout this report. However, the program also worked closely and often in cooperation with other donor-funded projects, local and international NGOs and GOZ Ministries and agencies. These collaborations and activities are summarized below.

| Name of Partner | Type of Activity | Results |
|---|---|---|
| Zim-ACP | Collaboration on gender issues | Women in agriculture workshop |
| PLAN International | Market linkage with Mutoko farmers to Harare Produce Sales | Harare Produce Sales now buying a range of vegetables worth on average of $15,000 per month from Mutoko farmers; 547 farmers received business training; smallholder farmers linked to the market for sale of their sugar beans. |
| PLAN International | Provision of sugar bean seed and fertilizer to some farmers in 8 wards of Mutoko district | 250 farmers receiving training in sugar bean production |
| ZRP Sub-Aqua Unit | Rectification of Halihulu dam outlet gate | Diving into reservoir as part of the restoration of full pumping capacity and rehabilitation of Makwe irrigation scheme |
| CRS Prize Project | Technical assistance on repair and maintenance of irrigation schemes and market linkages in Matabeleland South and assessment on commercialization of schemes | Report on technical findings on potential for commercialization of the schemes produced. AgriTrade clients identified to buy produce from three irrigation schemes in Matabeleland South |
| CRS Prize Project | Participation in two surveys: market gardens and irrigation schemes | Contribution to design of questionnaires |
| CRS Prize Project | Contribution to the Promoting Recovery In Zimbabwe (PRIZE) project Case Study Research report writing | PRIZE Case study Report. Results presented to all stakeholders |
| CRS Prize Project | Familiarization and program entry strategizing for Bulilima and Mangwe Districts and Moza irrigation scheme extension specifications | Successful entry of Zim-AIED into Moza irrigation scheme for horticulture programs |
| World Bank | Study of production and sustainability of irrigation schemes in Zimbabwe | Sharing of information ongoing |
| EU (European Union) | Collaboration at some SAT demo sites | Dissemination of GAPs |
| CESVI (Cooperazione e Sviluppo) | Potential cropping program for intercropping with citrus | No suitable crops were identified |
| ZINWA (Bulawayo and Mutare) | Assistance with repair and maintenance of pumps and irrigation equipment | Repair and restoration of three pumps at Makwe irrigation scheme (Mat South) and improved water availability |

| Name of Partner | Type of Activity | Results |
|---|---|---|
| ZINWA (Midlands) | Water provision | Agreement to work out demand managed water supply. |
| Lower Save East Sub Catchment Council | Training farmers in utility bill payment: explaining water levy and water fund bill determination and importance of early payment of bills | Most irrigation schemes in Chipinge have greatly reduced their bills |
| Ministry of Agriculture, Mechanization and Irrigation Development (MAMID) | Collaboration on trainings in water management | Produced design and topographical surveys for Dufuya (Midlands); assistance with surveying equipment; Zim-AIED given access to design maps for irrigation schemes |
| Department of Irrigation | Coordination of training and development of work plan | Repaired infield pipe leakages and trained farmers in maintenance operations at Mutema irrigation scheme; maintenance fund setup and collection; supervision of canal embankment repair and pump repairs and installations at Mutema, Musikavanhu and Chibuwe irrigation schemes |
| Department of Irrigation | Collaboration on trainings in water management; scheme maintenance and leadership training | Repair of pump at Chitora irrigation scheme (Mutoko); IMCs trained at four irrigation schemes in Manicaland and Masvingo; storm water drains repaired at Mutema and Taona irrigation schemes |
| Department of Irrigation, Midlands and Masvingo | Review of Zimbabwe's water policy | Contribution to the national water policy through three day stakeholders meeting |
| Department of Livestock production (Matopos Research station, MAMID) | Dissemination of technologies; animal Breeding: exchange of genetic materials; technologies on drought mitigation | Training materials on fodder production and winter supplements prepared for smallholder farmers |
| Department of Livestock Production Development (DLPD) | Fodder production trainings; Farmer selection and farmer mobilization in Nkayi | Increased awareness on fodder production for livestock nutrition by small holder farmers in Nkayi District |
| Department of Livestock Production Development (DLPD) | Feedlot establishment | Value addition of livestock resulting in increased incomes in Matabeleland North |
| Department of Livestock Production Development (DLPD), Ministry of Agriculture, Mechanisation and Irrigation Development (AMID). | Livestock production and development extension. | Silage making and prize giving field days held at Gokwe MPA and Claremont MPA |
| Department of Veterinary services | Veterinary technical advice on feedlot | Compliance with veterinary requirements |
| COSV (Coordination Committee for Voluntary Service) | Working with the same farmers at Lukosi | Zim-AIED attempting to show COSV the negative effect of providing free inputs |
| US African Development Foundation (ADF) | Collaboration and technical assistance with commercialization of paprika production groups in Nyanga area | Agreed to share databases of paprika producers in Nyanga and proposals for funding production inputs |

| Name of Partner | Type of Activity | Results |
|---|---|---|
| International Rescue Committee (IRC) | Exploring potential for cooperation in tabasco chili production in Manicaland (Nyanga) | Zim-AIED and IRC working with Better Agriculture to support commercialization of 187 smallholder tabasco chili farmers at Nyakomba irrigation scheme in Nyanga |
| International Rescue Committee (IRC) | Facilitating loan application for honey producers through MicroKing | Farmers examining and modifying their constitution to include criteria for lending qualification |
| International Rescue Committee (IRC) | Identification of potential clients for AgriTrade | Seven bankable clients involved in honey production identified as beneficiaries for AgriTrade |
| Organization for Rural Association for Progress (ORAP) | Familiarization with farmers and farmer training | 34 farmers trained at Moza |
| Women in Business in Sub Sahara Africa Alliance (WASAA) | Market linkages for 150 women farmers in Mashonaland | Discussion still ongoing |
| The United Nations World Food Program | Collaboration in identification of maize and sugar bean surplus areas for purchases by WFP approved traders to supply food deficit areas | Zim-AIED presented its commercialization approach on its target crops and products to 50 people at the WFP working group |
| Ruzivo Trust | Farmer training on organic farming of Fresh Fruit and Vegetables (FFV) Skills and Capacity Development | 40 farmers trained on understanding group dynamics, importance of cooperatives and irrigation scheme by laws |
| Kaite and Hilfswerk Austria International | Visit baobab processing plant at Birchenough Bridge | Information gathered on potential for income generation for smallholder farmers in arid area |
| ECOCERT (SA) | Discuss organic certification of commodities | Information gathered and linkages established |
| LEAD Trust | Collaboration in setting up of fodder demonstration plots in Nkayi, Matabeleland North | Six fodder demonstration plots set up |
| HEFO-Austria-AID | Collaboration activities animal health | Ongoing training in dosing and treating heifers |
| Food and Agriculture Organization (FAO) | Collaboration in livestock training activities | 12 fodder demonstration plots established; on-going trainings in good livestock production practices |
| Department of Livestock Production (Matopos Research Station) | Dissemination of technologies; animal Breeding: exchange of genetic materials; technologies on drought mitigation; fodder treatment | Planting fodder crops and training smallholder farmers on fodder crop production |
| Organization for Rural Association for Progress (ORAP) | Identification of clients for AgriTrade facility | Two AgriTrade clients identified and financed |
| Organization for Rural Association for Progress (ORAP) | Business management training activities at Moza irrigation scheme | Farmers trained in Farming as a Business |
| SNV | Identification of AgriTrade clients | Ongoing |
| International Livestock Research Institute (ILRI): CIMMYT and ICRISAT | Collaboration through innovation platform workshops to examine ways to improve livestock value chains | Ongoing |

| Name of Partner | Type of Activity | Results |
|---|---|---|
| ICRISAT | Fodder crops harvesting and preservation | Farmers in 5 fodder demo plots harvested and preserved fodder crops for winter feeding |
| ICRISAT | Technical assistance on improving water use efficiency at Silalabuhwa | Farmer skills improved; improved irrigation water use efficiency |
| Agricultural Marketing Authority | Collaboration on product markets and prices | Market information for various commodities being made available to farmers |
| Women Development Savings and Credit Union (WDSCU) | Training farmers on smallholder credit | Farmers trained on credit issues |
| Help Germany | Production support for sweet potato in Gweru and market linkage | Farmers sold 10 tons sweet potato and had $4,000 gross income |
| Help Germany | Training of farmers who benefitted from Help Germany loans. | Increased awareness on horticultural management practices. |
| Gellellschaft Fur Internationale Zusammenarbeit (GIZ) | Extension Approaches and business training | Capacitated FAVCO FEOs in Manicaland |
| Africa Enterprise Challenge Fund (AECF) | Banana procurement logistical support | Provision of a brand new four wheel drive tractor and trailer on loan to FAVCO |
| We Effect (ZADF) (Tsonzo) | Animal breeding | Dairy cow pregnancy diagnosis in preparation for synchronisation and subsequent rebreeding |
| World Vision | Coordination meeting to map ways of collaboration in implementing Zim-AIED and ENSURE program activities. | On- going: Proposed joint implementation of irrigation interventions in Nhedziwa and Mutema/Chibuwe irrigation schemes (Manicaland) |
| SNV | Coordination meeting to map ways of collaboration with Zim-AIED and Ensure program activities | Agreed implementation strategy in areas with an overlap in Manicaland<br>Collaboration on activities at Mutema/Chibuwe irrigation schemes - ongoing |
| Swedish Organization for Individual Relief (CBO against domestic violence, Honde Valley) | Organizing farmer training (Muterere tabasco chili group) | Joint farmer mobilization and training |
| CNFA, ORAP, Africare, Dabane Trust, Manoff group; International Medical Corps. | AMALIMA program. Co-ordination of training events at Moza and Makwe irrigation schemes | Better collaboration and interaction at field level. Avoid farmer confusion from parallel training - ongoing. |
| EU (European Union) | Collaboration at some SAT demo sites | Dissemination of GAPs |
| CESVI (Cooperazione e Sviluppo) | Potential cropping program for intercropping with citrus | No suitable crops were identified |
| ZINWA (Bulawayo and Mutare) | Assistance with repair and maintenance of pumps and irrigation equipment | Repair and restoration of three pumps at Makwe irrigation scheme (Mat South) and improved water availability |
| Ministry of Agriculture, Mechanization and Irrigation Development (MAMID) | Collaboration on trainings in water management | Produced design and topographical surveys for Dufuya (Midlands); assistance with surveying equipment; Zim-AIED given access to design maps for irrigation schemes |
| Department of Irrigation | Collaboration on trainings in water management; scheme maintenance and leadership training | Repair of pump at Chitora irrigation scheme (Mutoko); IMCs trained at four irrigation schemes in Manicaland and Masvingo; storm water drains repaired at Mutema and Taona irrigation schemes |

| Name of Partner | Type of Activity | Results |
|---|---|---|
| Department of Irrigation, Midlands and Masvingo | Review of Zimbabwe's water policy | Contribution to the national water policy through three day stakeholders meeting |
| Department of Livestock production (Matopos Research station, MAMID) | Dissemination of technologies; animal Breeding: exchange of genetic materials; technologies on drought mitigation | Training materials on fodder production and winter supplements prepared for smallholder farmers |
| COSV Coordination Committee for Voluntary Service) | Working with the same farmers at Lukosi | Zim-AIED attempting to show COSV the negative effect of providing free inputs |
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| Name of Partner | Type of Activity | Results |
|---|---|---|
| Department of Livestock Production (Matopos Research Station) | Dissemination of technologies; animal Breeding: exchange of genetic materials; technologies on drought mitigation; fodder treatment | Planting fodder crops and training smallholder farmers on fodder crop production |
| Organization for Rural Association for Progress (ORAP) | Identification of clients for AgriTrade facility | Two AgriTrade clients identified and financed |
| Organization for Rural Association for Progress (ORAP) | Business management training activities at Moza irrigation scheme | Farmers trained in Farming as a Business |
| SNV | Identification of AgriTrade clients | Ongoing |
| International Livestock Research Institute (ILRI): CIMMYT and ICRISAT | Collaboration through innovation platform workshops to examine ways to improve livestock value chains | Ongoing |
| ICRISAT | Fodder crops harvesting and preservation | Farmers in 5 fodder demo plots harvested and preserved fodder crops for winter feeding |
| Agricultural Marketing Authority | Collaboration on product markets and prices | Market information for various commodities being made available to farmers |
| Women Development Savings and Credit Union (WDSCU) | Training farmers on smallholder credit | Farmers trained on credit issues |
| Help Germany | Production support for sweet potato in Gweru and market linkage | Farmers sold 10 tons sweet potato and had $4,000 gross income |

# ANNEX 6: SUCCESS STORIES

USAID | ZIMBABWE
FROM THE AMERICAN PEOPLE

## SNAPSHOT

## Banana farming transforms smallholder farmers

**240 smallholder farmers in Mutema have sold more than $500,000 worth of high-quality bananas.**

*Photo by Fintrac*

Lindiwe Sithole stands in front of the new home she built with the money she earned from her banana crop. She now realizes more than $4,000 in annual income from banana production.

**"My income level has increased significantly as a result of using new technologies, training and access to markets."**

*Lindiwe Sithole, smallholder farmer*

Lindiwe Sithole, a 23-year old orphaned smallholder farmer in Mutema village in southern Manicaland, had been living off minimal profits from her small plots of tomatoes, wheat, and maize for years. The traditional agricultural methods she'd been following resulted in low harvest and little income.

Further jeopardizing her situation is Mutema's dry climate, which receives less than 500 millimeters of rain per season and makes meaningful crop production nearly impossible without irrigation.

To address these challenges, USAID began working with Matanuska, a commercial banana company, in 2011 to develop 60 new hectares of banana production for small-scale farmers in Mutema through the Zimbabwe Agricultural Income and Employment Development (Zim-AIED), program. The five-year, $36 million program helped farmers like Sithole to treat their farms as businesses.

The program worked with 240 plot holders, including Sithole, all of whom are reaping benefits from implementing good agricultural practices and modern production technologies. Mutema farmers received tissue-cultured banana seedlings, which they kept in an on-site nursery until the plantlets were ready for transplant. With support from Zim-AIED, the farmers also installed a micro-jet irrigation system to optimize water use efficiency.

Sithole's 0.25-hectare banana plot has transformed her life. She started planting bananas in February 2012. Sithole repaid $2,317 toward her input loan in the first year of production. Since 2012, with the increased income of more than $4,000 per year, Sithole built a modest house, pays for her family's education, and can now afford to purchase more nutritious food.

"My income level has increased significantly as a result of using these new technologies, trainings, and access to markets," Sithole said.

Currently, overall volumes at Mutema continue to rise as it is now at optimum performance with all sections mature. Smallholder farmers are realizing average yields of 73 tons per hectare against an average of 40 tons per hectare attained by large-scale commercial farmers. On average, Mutema farmers earn an annual income of $4,089 per household, of which bananas contribute approximately 47 percent.

Zim-AIED | Snapshot | September 2015

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# SNAPSHOT

## Strengthening Collective Purchasing Power

**Through better organization, smallholder farmers can increase their purchasing power and access the inputs they need to improve agricultural productivity.**

*Photo by Fintrac*

Members of Nyanhurzi farmer group stand in front of a truck loaded with fertilizer inputs they purchased from Windmill, a commercial supplier.

**"Our maize and sugar bean yields this season were much better than before."**

*Hudson Kambuzuma, smallholder farmer and chairperson of Nzarayapera Farmer Group*

Before the Zimbabwe Agricultural Income and Employment Development (Zim-AIED) program arrived in Guruve, Mashonaland Central, smallholder farmers had trouble accessing agricultural inputs on time. Transportation constraints and a lack of information on alternative suppliers meant farmers had to wait for sellers to come to them. Others had to farm without appropriate fertilizers and pesticides, leading to poor yields and potential health and environmental concerns.

To address these challenges, Zim-AIED is linking farmer groups to input suppliers to make better agricultural products more readily available. After attending business development services training, more than 100 beneficiary farmers formed four farmer groups to mobilize funds for purchasing farming inputs for the 2013/2014 agricultural season.

The work started at the farm level where program agribusiness advisors offered technical assistance to farmers. The trainings focused on basic business principles: crop budgeting, recordkeeping, and good agricultural practices such as crop rotation, mulching, herbicide use, and proper fertilizer application.

In their groups, the farmers collected cash for fertilizer inputs and agrochemicals. Armed with cash and knowledge, the groups purchased fertilizers and agrochemicals worth more than $38,230 from commercial supplier Windmill.

"Our maize and sugar bean yields this season were much better than before, thanks to Zim-AIED," said Hudson Kambuzuma, chairperson of the Nzarayapera farmer group.

Contributions from each farmer were as little as $10 per month for six months. The four groups purchased Ammonium Nitrate, Compound D and C, and other herbicides that would help them save money and time by eliminating the need to hire expensive labor for hand weeding. Thanks to sales consolidation, these groups enjoyed volume discounts and reduced transportation costs.

The four groups have leadership structures with full committees headed by an elected chairperson, and each group afforded women fair representation in these committees, comprising 42 percent of the positions.

Over the life of the program, Zim-AIED developed 10 input procurement groups that are now able to access input loans independently.

Zim-AIED's market-driven approach ensures sustainability – suppliers continue to provide better products and services to smallholders even after the program's close. The positive experience of input procurement groups is having the trickle-down effect of inspiring other farmers in the region to adopt similar procurement models.

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# SNAPSHOT

## Access to Credit Improves Smallholder Livelihoods

**Working capital loans increase investments and incomes for smallholder farmers.**

*Photo by Fintrac Inc.*

Gilbert Mtisi of Musikavanhu Irrigation scheme monitors his sugar bean crop. With access to affordable credit, Mtisi is able to diversify into high-value crops such as sugar beans.

Access to credit under the five-year USAID funded Zimbabwe Agricultural Income and Employment Development Program transformed the face of production for smallholder farmers at Musikavanhu irrigation scheme in southern Manicaland.

Smallholder farmers across Zimbabwe face challenges in accessing agricultural credit from financial institutions as they lack adequate collateral, creating a perpetual cycle of low-quality crops and low yields.

To address this constraint, Zim-AIED offered lines of credit to thousands of smallholder farmers by partnering with banks and microfinance institutions to provide financing models suitable for smallholder farmers.

At Musikavanhu, farmers partnered with MicroKing, an implementing partner under the USAID-funded AgriTrade facility, to receive affordable lines of credit to jumpstart production of high-value crops.

Since July 2013, MicroKing assisted more than 70 smallholder farmers at Musikavanhu with various working capital loans amounting to $42,500 for the production of sugar bean, tomatoes, paprika, and onions.

"Linking with MicroKing enabled me to secure inputs on time for the past two farming seasons, and my yields have improved significantly," said Gilbert Mtisi, a beneficiary of the input loans at Musikavanhu.

During the 2013/14 season, Mtisi harvested more than 15 tons per hectare of tomatoes, compared to 10 tons he used to realize with inadequate inputs. He fully repaid his first AgriTrade loan and realized a net profit of $775, a 50 percent increase in profits compared to the previous season's profit of $380 without adequate inputs.

"I have used this profit to purchase a plough, a cow, and a donkey," he said.

**"This past season I managed to harvest 15 tons per hectares of tomatoes, compared to an average of 10 tons previously."**

*Gilbert Mtisi, smallholder farmer*

Mtisi received a second loan of $400 for the production of 0.8 hectares of sugar bean. Selling to Kurima Gold, he earned more than $1,760 from 1.6 tons.

Zim-AIED's technical intervention coupled with access to credit resulted in increased agricultural production and productivity, leading to increased incomes and rural investments for smallholder farmers.

For agricultural season 2013/14 alone, smallholder farmers in Mutema and Chibuwe realized $1,655,700 worth of sales from sugar bean production.

Under the direct lending initiative, smallholder farmers received 2,502 loans valued at $1.1 million. With increased direct lending to smallholder farmers, lives will continue to change.

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